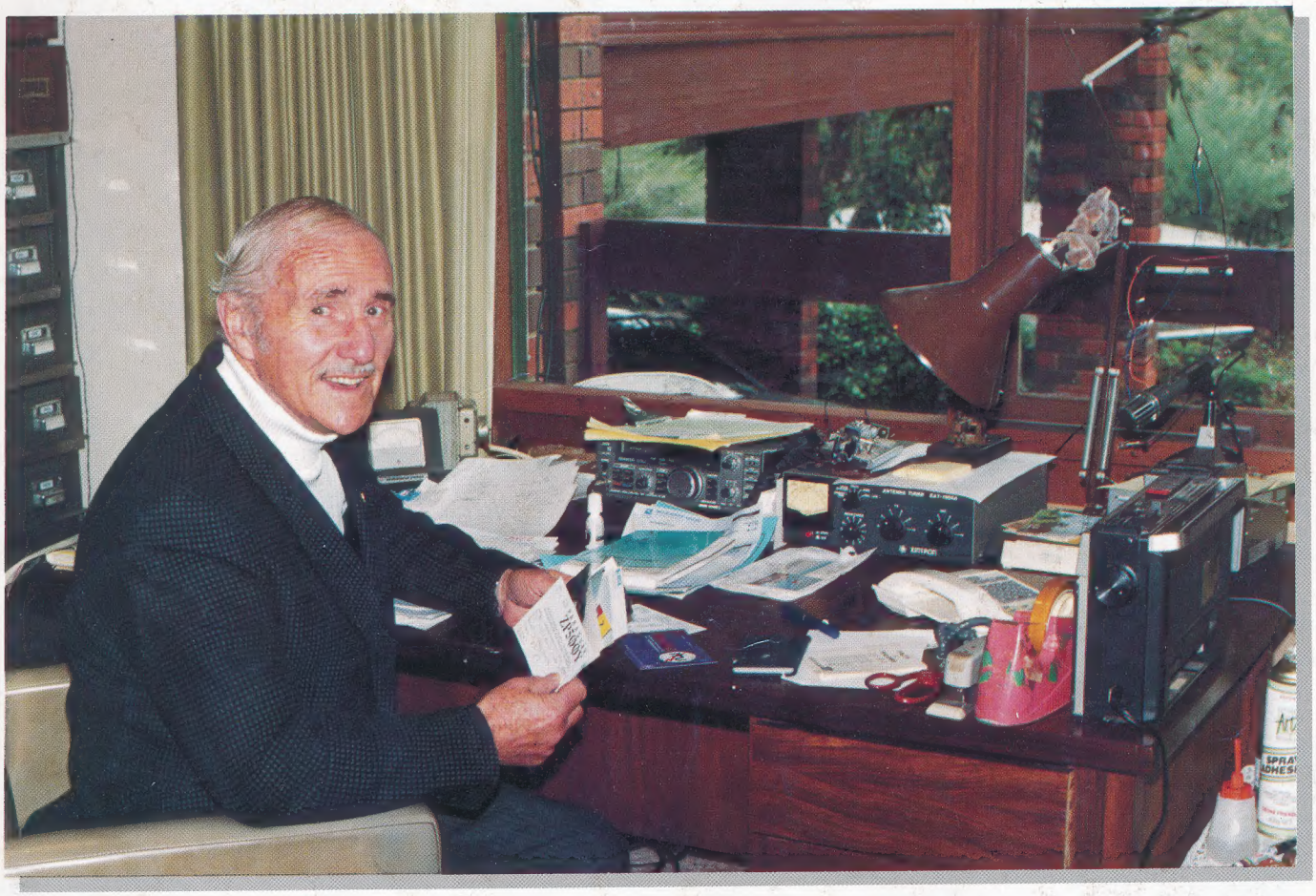
Amateur Radio

September 1997
Volume 65 No 9

WIRELESS INSTITUTE OF AUSTRALIA

Journal of the Wireless Institute of Australia



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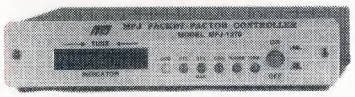

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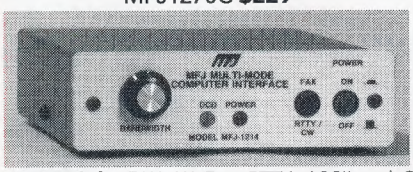

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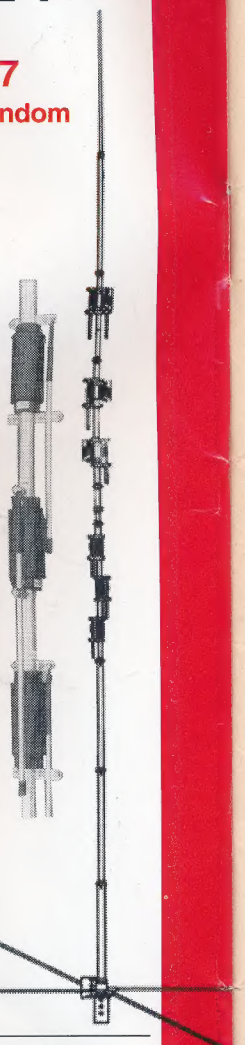

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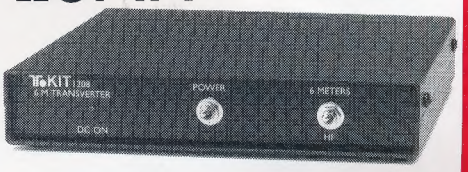

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If this magazine is not received by the 15th of the month of issue, and you are a financial member of the WIA, please check with the Post Office before contacting the registered office of the WIA.©

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Cover

Ken Matchett VK3TL, quite apart from being an active radio amateur and a notable marathon runner, particularly considering his age, is also Honorary Curator of the WIA QSL collection. Ken has built this QSL collection up into what is considered to be the biggest and most comprehensive collection of its kind in the world. *(Photo by Ron Fisher VK3OM)*

BACK ISSUES

Available direct from the WIA Federal Office, only until stocks are exhausted, at $4.00 each (including postage within Australia) to members.

PHOTOSTAT COPIES

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus $2.00 for each additional issue in which the article appears).

The opinions expressed in this publication do not necessarily reflect the official view of the WIA, and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Editor's Comment

Oiling The Works

By "works" I mean the administrative machinery which, every month, purrs into action and produces yet another issue of *Amateur Radio*. It's operating pretty smoothly now, this being the ninth issue produced by vk3br Communications, but there are still a few little "glitches" needing a drop of "glitch oil"!

Glitch 1. Hamads are now processed directly by vk3br Communications, NOT by the Federal Office. If you send your Hamad form to the Office, as some still do, it may take another couple of days before it arrives in the right place and can be dealt with. BUT, if you are using the dual purpose form on the back of the flysheet to notify a change of address or callsign, then it must go to the office, because membership records are still an office responsibility (except in VK4 where the Division keeps the records). BUT, if you want to do both at once, that is notify a change AND insert a Hamad, then please use two separate forms. You get one every month as an address label so save a few just in case. But please don't use your change notification form to give your Hamad address. That should be part of the Hamad!

Glitch 2. Still on Hamads! Please make an effort to do your best block capitals when you fill in your Hamad details. A few are still not as legible as they could be. This is particularly important for model numbers, addresses, and phone numbers, and even more so if sent by fax. Some faxes are not as clear as others!

Glitch 3. This one has been with us since the magazine began. Our stock of technical articles is getting rather low. In other words, we are printing them faster than you are writing them. I know some of you have far exceeded the call of duty and sent in dozens if not hundreds of articles over the years! But we would like to see articles from new authors too! There must be dozens of readers out there with all kinds of expert knowledge. We would love to help you share it with your fellow amateurs.

Item 4. This is not a glitch, but another way of doing things (thereby avoiding glitches!). If your news item, column, article, etc includes photographs there is always a risk they could be

Continued on page 51

CONTRIBUTIONS TO *AMATEUR RADIO*

Amateur Radio is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk or via e-mail are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. A pamphlet, *"How to Write for Amateur Radio"*, is available from vk3br Communications Pty Ltd on receipt of a stamped, self addressed envelope.

■ WIA News

Roger Harrison VK2ZRH, Federal Media Liaison Officer

Further Concessions on Repeater and Beacon Fees

In confirming the $50 per call sign per site per year renewal fees for amateur beacons and repeaters, the Australian Communications Authority (ACA) has advised further concessions.

The fee for new beacon and repeater applications will be the same as for renewals, that is, $50. There will be no assignment fee. In addition, where beacon and repeater licensees wish to vary an existing licence, to add additional beacon frequencies or repeater systems for example, then a $30 charge per variation to the licence will be payable, according to the ACA who wrote to the WIA in July.

The original verbal advice of proposed changes to the beacon and repeater fees regime, given to the WIA in May from the then-SMA, warned that new applications might attract an "assignment fee", charged on an hourly basis. However, the level of the fees to be charged for new applications was subject to further advice, the WIA was told at the time, and this was indicated in the WIA News release of 28 May, and published in the July issue of *Amateur Radio* magazine (p 3).

The new licensing arrangement for beacons and repeaters was confirmed in written advice to the WIA from the ACA on 14 July. The letter said: *"All Amateur Repeaters operated by one licensee at a site may now be authorised under a single Amateur Repeater licence. Under such an arrangement it is necessary for all Amateur Repeaters to operate under the same callsign. Where different callsigns are required for every repeater they will have to be licensed separately.*

"All links associated with the above Amateur Repeaters may also, providing they operate within amateur spectrum, be authorised under the one Amateur Repeater licence.

"Similar arrangements also apply to Amateur Beacons. Note that Amateur Repeaters and Beacons cannot be authorised on the one licence.

"Arrangements to change existing individual arrangements will only be made at the request of a licensee. All of the work to convert existing Repeater or Beacon licences will be done free of charge by the ACA."

The ACA added that any new applications will be treated in accordance with the new licensing policy, and that relevant policy and procedural documentation will be amended to reflect the changes. The ACA is writing to all repeater and beacon licensees on their register.

[Released 18/7/97. Updated 8/8/97].

Winners are Grinners!

Happy with her windfall, is Trish Johnston of Donnybrook in Brisbane, winner of the Fluke 12B digital multimeter from the month of May's new WIA recruits, presented by WIAQ President, Rodger Bingham VK4HD. Trish decided to join the Queensland Division and filled out her subscription at the Brisbane Amateur Radio Club's BARCfest on May 3. *(Picture courtesy of Laurie Pritchard VK4BLE).*

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World Amateur Radio Day Events in Australia

Saturday, 20 September is *World Amateur Radio Day*, an International Amateur Radio Union – and WIA – supported activity for the promotion of amateur radio to the community. Amateurs in Queensland, South Australia and Victoria are organising events for the day.

The WIA Federal Council agreed earlier this year to support the event, which was announced in May and published in June *Amateur Radio* magazine (p 6).

The South Side Amateur Radio Society in Brisbane is organising a promotional event in the Market Mall at the Triple-C Shopping complex in Woodside. The complex is located at the corner of Wembley and Kingston roads. As Adam Jaroszuk VK4LAJ told *WIA News*, they're planning a 2 m packet radio station and a 2 m voice station working through the club's repeater, which is linked to 10 m. They'll be using the Society's call, VK4WSS.

To broaden the attraction, they'll have another computer system showing satellite tracks on-screen, with the intention of demonstrating that radio amateurs are involved in the exciting world of satellites and space technology. The SSARS is only planning a static HF display as the environment doesn't lend itself to HF operation, although they might be able to organise reception on the HF bands. The SSARS will be running their display over the hours the Mall is open, from 8.30 am to 5 pm. Contacts for further details are: Adam Jaroszuk VK4LAJ on 041 227 1095 (after 4 pm), or Barry Travers VK4BAZ on 07 3299 2739.

A joint effort between amateurs in South Australian and Victorian amateurs for World Amateur Radio Day is the Amateur Radio Balloon Experiment (ARBE), encouraging school science classes to participate. The mission is to launch a balloon from Gawler High School in South Australia, the anticipated flight path being across eastern South Australia into central northern Victoria. A payload package will carry a series of environmental sensors and a 2 m FM beacon with voice-synthesised and data telemetry transmissions. At the flight's end, a self-deploying drag parachute will see the payload package returned safely to the ground.

The estimated flight duration is four to six hours from launch. The balloon is anticipated to reach altitudes of 60,000 to 80,000 feet, which would enable slant reception ranges for the 2 m telemetry beacon to be more than 500-600 km, so it should be able to be heard over quite a wide area. Only simple equipment will be needed to hear it, such as a 2 m FM receiver or a scanner with "NBFM" reception ability. A simple 2 m antenna, such as a ground-plane, or a wide-band antenna such as a discone, should be enough to hear the balloon's beacon within the general flight zone. As it has voice telemetry, a cassette recorder can be used to record signals. A computer and simple decoder and terminal program can be used to receive ASCII telemetry.

The project is being co-ordinated by Tony Van Lysdonk VK5WC, SA Division Education Co-ordinator. The flight package is being built by Geoff Baxter VK3ZVW, while Glenville Sawyer VK5ZCF is providing downlink telemetry evaluation and has written a Web site for the project. Check it out at *http://dove.net.au/~gsawyer/balloon1.html.*

If any other Divisions or groups organised events for World Amateur Radio Day, let *WIA News* know, via e-mail to *rogerh@apogeegroup.com.au*, fax to (02) 9327 7985, or regular mail to LMB 888, Woollahra NSW 2025.

[Released 11/8/97]

25th SEANET Convention for Darwin

The 25th annual convention of the South East Asia Amateur Radio Network will be held this year in Darwin over 14-16 November, hosted by the Darwin Amateur Radio Club Inc (DARC).

The SEANET convention is held each year in November at a venue somewhere in the South East Asian Region. This is the second time that Darwin has hosted the convention. The last occasion was in 1992, which the Federal Government used to announce changes to the amateur radio licensing regime, which subsequently led to the introduction of the new Novice Limited licence and the creation of the Intermediate licence.

SEANET is an informal network of amateurs from the South East Asian region who hold a nightly net on 14,320 kHz at 1200 UTC. It began in 1964.

The official SEANET station for the event, VK8SEA, will be in operation over the weekend of the convention. So, there'll be some operating between eyeball QSOs, partying, touring and attending seminar sessions. Further details from DARC President, Spud Murphy VK8ZWM on 08 8983 2456 (after hours), or to DARC at PO Box 41251, Casuarina NT 0811. Web surfers should check out *www.topend.com.au/~seanet.*

[Released 11/8/97]

Help stamp out stolen equipment – always include the serial number of your equipment in your HAMAD.

Flukes for Recruits!

The prize draws for both June's and July's crop of new recruits are available this month, so we have two winners to announce, who will each receive a Fluke 12B digital multimeter donated by Philips Test & Measurement.

A YL from Indianapolis, Indiana, in the USA won the June prize draw. She is the second YL and the second Queensland Division member to win the Fluke 12B digital multimeter in the WIA monthly recruitment draw. She's **Roberta Barmore KB9GKX**, who works as an executive in the local television station. Roberta was recruited on-air by past Queensland Division President, Murray Kelly VK4AOK. Apparently, either the prize or Murray's persuasive tones were irresistible - she signed up for a three-year membership!

Another Johnston won the July prize draw, the same name as won the May draw. However, **A S Johnston VK6SWR**, hails from Western Australia and scooped the pool from a total of 34 new members for July!

To date, three NSW Division members have taken the Fluke 12B multimeter prize, all in the first three months of the year, and one Victorian Division member. Now, the WIA's recruitment drive is world-famous and, for the first time, a prize goes west!

There's a multimeter to be won every month throughout 1997 in a draw from among new WIA recruits joining in any particular month. The Fluke 12B digital multimeter is worth $195, and the 12 prizes have been generously donated by Philips Test & Measurement. Fluke is the world's pre-eminent manufacturer of digital test instruments and the Model 12B is from their latest range of hand-held instruments.

The Fluke 12B measures AC and DC voltage (with auto-selection above 4.5 V), resistance and capacitance from 1000 pF to 1000 µF. The instrument features a simple rotary dial, a 4000-count liquid crystal display, and diode and continuity testing. Its "continuity capture" feature indicates intermittent open and short circuits. It comes with test leads and a two-year warranty.

Every newcomer to electronics and amateur radio needs a good multimeter, and every seasoned enthusiast could always do with another one. And the chances of winning are **very** good!

Membership recruitment advertisements appear in each issue of *Amateur Radio* magazine, and in *Radio and Communications* magazine. Membership recruitment and renewal advertisements are also on WIA Divisions' World Wide Web pages on the Internet.

[Released 14/8/97]

Amateurs in New Zealand Restricted by New TV Station

With the installation of a TV translator near Auckland, operating on New Zealand Channel 1 (44-51 MHz), amateurs in Auckland were notified by letter on 28 June 1997 that they were to cease operation on the 50.0-50.15 MHz band.

In New Zealand, the Amateur Service is a secondary service on the two 6 m bands allocated there, of 50.0-50.15 MHz and 51-53 MHz. The 6 m "DX Window" at 50 MHz is allocated in New Zealand only on "a temporary basis".

The NZART's Terry Carrell ZL3QL said that the Association previously had received assurances from the local broadcaster that they would not take up use of Ch 1 in Auckland.

In any case, use of the 6 m band by any amateur station requires approval from the New Zealand Ministry of Commerce Communications Division. It is understood that some amateurs in the Auckland area may gain access to the 6 m band on a non-interference basis following the submission of new permit applications and testing and approval by the authorities. New Zealand amateurs have something less than a secondary status in the 50.0-50.15 MHz band.

[Released 12/7/97. Updated 8/8/97].

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TM-733A prize kindly donated by Kenwood Electronics Australia P/L, PO Box 504, Homebush 2140. Ph: (02) 9746 1888. Fax: (02) 9746 1509.

Impact on Amateur Bands from Recent Radcom Licensing Changes

Further to last month's news about new Class licensing changes affecting 430 MHz, that news item also revealed that the WIA had raised concerns with the SMA about the proliferation of permitted devices on the 2.3 GHz, 5.65 GHz and 24 GHz bands.

However, the Class licence for "low interference potential devices" (LIPDs) updated in June also provided new access for RF identification (RF ID) transmitters at 2.93-3.58 MHz and 7.2-10.01 MHz, which potentially impacts the 80 m and 40 m bands. The 80 m band has been shared with Class-licensed "RF tag" devices (for 3.5-3.7 MHz operation) since 1990 (see WIA News, *Amateur Radio* magazine, April 1990, p 3).

RF tags are a technology used for 'wireless' identification or security of merchandise. However, with radiated powers of 30 picowatts, their signals fade into the general urban noise level within 30-40 metres of where the devices are installed. The new allocations for RF ID applications are authorised for a maximum power of 100 picowatts (EIRP), which means that about 100 m or more away from the source, the signal falls below the general urban RF noise levels. If you're unlucky enough to live next door to a location where one is installed and it interferes with 80 m reception, a polite approach to the operator and local ACA area office should open the way to solving the problem. As a taxpayer and a fee-paying licensee, you're entitled to relief from interference.

While the earlier LIPD Class licence which the June issue replaced provided access for telecommand/telemetry and RF ID transmitters of 1 W on 2400-2450 MHz, and 5725-5875 MHz, devices having 2 W output are now permitted on 5795-5815 MHz. The previous access for 1 W devices has been split into two sub-bands, at 5725-5795 MHz and 5815-5875 MHz. Any devices operating in 5815-5875 MHz may affect satellite reception as 5830-5850 MHz is the amateur satellite downlink segment on the 6 cm band. The only saving grace (?) is that these devices are intended for in-building applications and employ low-gain antennas. Amateurs are a secondary service on this band, and that includes amateur satellites. Radiolocation (radar) is the primary service, so there's going to be more sharing.

The situation on 13 cm (2300-2450 MHz) has been deteriorating in recent years and the outlook for amateur operations on the band is not bright. Already, activity has been affected since the introduction of microwave distribution services (MDS) in 1993, using 2300-2400 MHz for Pay TV distribution and for commercial high speed data links. Installations have proliferated in Adelaide, Brisbane, Melbourne and Sydney. Both narrow-band and wide-band amateur activities have been affected in these cities, in areas surrounding MDS installations. In addition, wireless local area network (wireless LAN) systems are an application for which a special Class licence was created in 1996, licensing spread spectrum modulation equipment for powers up to 4 W, specifying bands at 2400-2483 MHz and 5725-5875 MHz.

Other applications include wireless PABXs, wireless barcode readers and point-of-sale (POS) networking. Transmitter power of 200 mW is allowed in 2463-2483.5 MHz, 4 W in 2400-2463 MHz, and 1 W in 5725-5875 MHz. These applications are also generally meant for in-building installations and employ low-gain antennas.

As amateur activity is "retreating" to 2400-2450 MHz, the 4 W power for devices using 2400-2463 MHz represents an additional potential threat to amateur operations, especially considering the 2400-2403 MHz Amateur satellite segment and other weak-signal segments above 2403 MHz. Permission for 1 W devices in this band was brought in with the 1993 LIPD Class licence.

The finalisation of IEEE Standard 802.11 applicable to wireless LAN technology is likely to lead to an explosion in development and sales of technology exploiting the standard and thus of systems making use of 2400-2483 MHz and 5725-5875 MHz.

With transmitter powers of 1 W permitted on 2400-2450 MHz and 24-24.25 GHz under the LIPD Class licence, the WIA raised particular objection to the latter, as the lower 50 MHz of the 1.25 cm (24 GHz) band is the first primary amateur band segment above 2 m, and is an amateur satellite band.

LIPD applications have something less than secondary status, and the licence conditions offer no protection from interference. But that's of little consequence when an attempted contact fails as a result of random or intermittent interference which is hard to track down.

[Released 11/8/97]

A Right Royal Contact!

Queen Elizabeth II made ham radio history on Wednesday, 25 June 1997 when she took the microphone at special event station VO500JC at Signal Hill in Newfoundland to transmit a message to GB500JC in Bristol, to commemorate the 500th anniversary of the voyage of British explorer John Cabot aboard the vessel "Mathew" sailing from Bristol, England, to Newfoundland in what is now Canada.

The Radio Society of Great Britain's GB2RS News service reported that, despite poor propagation conditions between Newfoundland and Bristol at the time, good contact was made between 1801 and 1805 UTC on 20 m SSB.

Her Majesty the Queen, speaking in English and French, said: *"I am speaking to you now from Signal Hill National Historic Site, d'ou Guglielmo Marconi a recu le premier signal transatlantique de radio. I am happy to know that Newfoundland and Labrador is still in the forefront of the communications industry and is working closely with other leaders in this field across the Atlantic."*

The RSGB said that they believed this was the first time that a reigning British monarch had transmitted on amateur radio.

[Released 12/7/97].

Common Date Membership Renewal Abandoned

The WIA Federal Executive has abandoned common-date membership renewals as a result of a review of the system's impact following a phase-in period over January to June this year.

Anticipated cost savings could not be achieved owing to the necessity of having to accept new memberships as recruits joined and the ongoing cost of maintaining new member record-keeping, together with the cost of training casual staff planned to be employed during the renewals peak period. Some loss of members resulted from the issuing of renewals for longer than 12-month periods in the quarter before 1 July.

Membership renewal has returned to the anniversary system where members' renewals are sent out the month before the anniversary of their joining. Those who renewed during the common-date adjustment period to 1 July will receive renewals in 1998 according to when they renewed this year.

Renew for a chance to win! For those whose renewal is still to come between now and December, remember that you stand to win a fabulous Kenwood TM-733A dual-band 2 m-70 cm transceiver worth $1255 - that's around 18 to 20 years worth of membership!

This outstanding rig, generously donated by Kenwood Electronics Australia, features FM and packet radio operation, 50 watts output on 2 m, and 35 watts on 70 cm. In addition, it features simultaneous dual-band VHF-UHF reception, and dual-channel reception on VHF and UHF.

The TM-733A also has a data connection for 1200 or 9600 baud packet radio, switchable 10 W/5 W RF output, automatic repeater offset on 2 m, selectable frequency steps, 70 multi-function memories, and a large, high-visibility LCD panel.

All you have to do to be in the draw for this great rig is renew your Division membership when it falls due.

The prize will be awarded by means of a draw, the result to be published and the prize to be presented to the winner at the first available opportunity early in 1998.

All members whose renewal falls due between 1 January and 31 December 1997 are eligible, and all membership grades are included, as well as life members and current members who are on a three-year membership.

[Released 12/7/97. Updated 11/8/97]

Review of Radcom Act Under Way

The opportunity Australia's amateur radio community has been waiting for, to have the amateur licensing system reviewed so that we can "get out from under" the wholly unsuitable commercial framework of Apparatus Licensing, has arrived with the foreshadowed review of the Radiocommunications Act 1992 and recent amendments, announced by the Department of Communications and the Arts (DoCA) at the end of July.

This review is where the WIA's submission, *"Towards a New Licensing System"*, is to be considered. The submission, presented to the Minister for Communications in February, has already been passed from the Minister's office to DoCA for this review.

In opening the review, the Department called for public submissions, requesting comment on:

- How the appropriateness, effectiveness and efficiency of spectrum management should be assessed;
- What, if any, special provisions need to apply to particular classes of spectrum users;
- Any difficulties experienced with current arrangements, including any excessive red tape, paper work or compliance burdens (particularly for small business); and
- Alternative spectrum management options that should be considered by the review.

The WIA submission sets out that Australian radio amateurs require:

- individual licences,
- certainty of licence tenure,
- where fees are applicable, an equitable fees framework,
- certain and continuing access to frequency bands throughout the radio-frequency spectrum, and
- continuing participation in spectrum management processes at local, national and international levels.

The deadline given for receipt of public comment was 29 August.

The WIA submission calls for amendment of the Radiocommunications Act, to create a fourth licence type, simply titled *The Amateur Licence* which, for anyone meeting the requirements of the appropriate AOCP, would be issued once-only, for life, or alternatively, issued for terms of five years, with renewal. The submission's approach in putting an "either/or" case for issuing licences (whole of life, or five-year terms) was done after considering tactical approaches used by lobbyists, lawyers and legislators. Where any situation is open to negotiation, everyone knows there is no "one right way". Providing alternate approaches acknowledges this and substantially reduces the risk of outright rejection or diminishing recommendations or claims, and forces wider consideration of arguments and supporting evidence.

The WIA's position is that, for the purposes, role and activities of radio amateurs, the current three licensing systems have conflicting limitations, restrictions and administrative constraints. In addition, the fees framework of the Apparatus Licence system embodies the concept of "spectrum denial" and employs a Spectrum Access Tax (SAT) formula that values scarcity and demand, and acts as "a rationing device." These are all precepts of a commercial, economic nature and not applicable to the Amateur Service which is a voluntary, non-pecuniary service, the WIA submission points out, and impossible to apply to Amateur licences.

The submission points out that there is scope to waive amateur licence fees, as has been done in the USA, but if the government is determined to charge, then we would be better served by a more equitable licence fee regime that reflected the value to the community of

the Amateur Service. To support this, the submission demonstrates with documented instances how the Amateur Service:

- creates within the community a pool of technically knowledgeable people trained in communications operations,
- motivates young people to take up scientific or technological careers,
- contributes to the advancement of scientific knowledge,
- contributes to the development of technology and the communications infrastructure,
- enhances international understanding and goodwill, and
- provides communications support during emergencies and for community activities.

The submission calls for waiving the Spectrum Access tax and reducing administrative charges (currently $36), to be achieved by reducing amateurs' 'engagement' with the ACA through devolving more administrative work to the amateur community, such as issuing Certificates of Proficiency, and call sign management. The issuing of licences can be separated from the allocation of call signs. The licence itself is a legal document, while your call sign is a convenient means of individual on-air identification. One can be issued without the other. If the ACA issued licences and the WIA (as the peak body) allocated call signs, and administered the relinquishment or changing of call signs, the Authority's administrative costs would fall. Likewise, if licences were issued only once and either never renewed, or renewed at less frequent intervals than yearly, costs would fall. Everyone, administrators and amateurs alike, would benefit. Here's hoping the WIA's submission receives favourable consideration.

[Released 11/8/97]

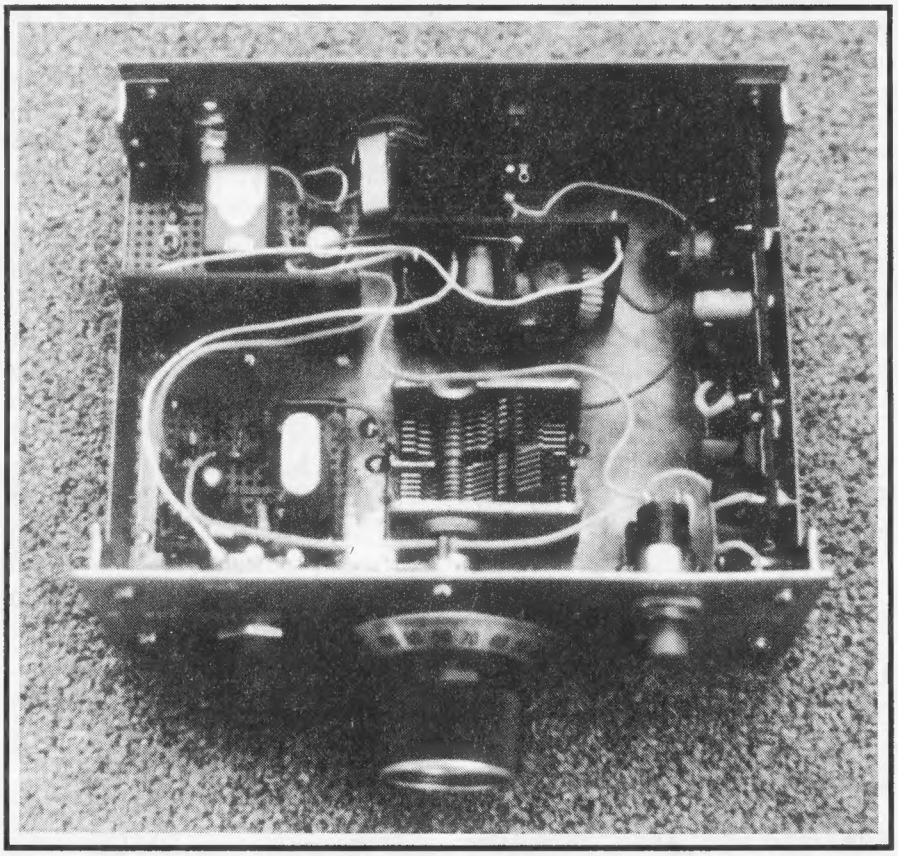
Your Hobby Your Voice

Representing Radio Amateurs Since 1910

■ Transceivers

A Receiver for the Garran

Peter Parker VK1PK describes a matching receiver for his Garran CW QRP transmitter.*



The Garran Transceiver. Clockwise from the tuning capacitor the circuit boards are VXO and buffer, keying stage, transmitter driver/power amplifier, and receiver section.

Introduction

As anyone who has done much portable QRP work knows, a transceiver is far easier to operate than a separate transmitter and receiver. The space saved is welcome too!

Experience with the Garran 40 m CW QRP transmitter (Reference 1) was encouraging. This article describes how a receiver section was added to the prototype. The unit pictured is a basic transceiver without frills like sidetone, metering and automatic transmit/receiver frequency offset. However, these can be added if desired.

The receiver itself is a direct conversion type similar to that used in a more elaborate QRP transceiver (Reference 2). However, because headphone-only reception was required, less audio gain is provided. The circuit shown gives adequate volume into a pair of 600 ohm headphones.

Fig 1 shows the schematic diagram of the Garran transceiver. The previously published circuit of the transmitter has been modified so that the oscillator runs continuously. Note that some of the

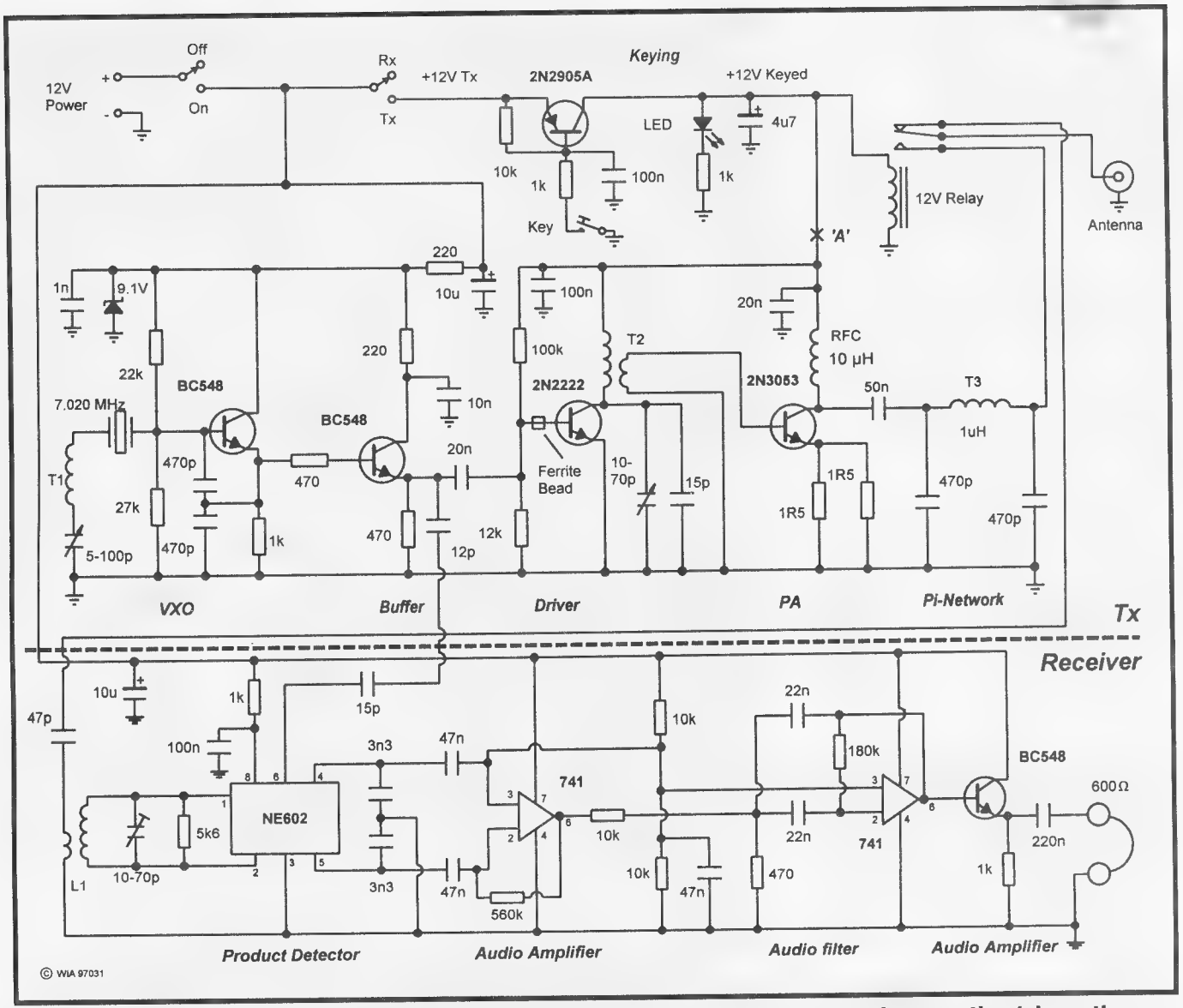


Fig 1 – Schematic diagram of the Garran 40 metre CW QRP transceiver. The transmitter section (above the dotted line) is as previously published, with only minor modifications. The receiver, the subject of this article, is below the dotted line. L1 consists of 20 turns wound on a 9 mm ferrite toroid, 4c6 material, with an antenna coupling link of three turns.

buffer's output is fed to the receiver's product detector. This is why the VXO and buffer need to operate continuously. The only other connections between the transmitter and the new receiver are the +12 V power and receiver antenna connections. While power to the receiver could be removed during transmit, additional circuitry or a dual pole relay would be required. This circuit economises by using only a single pole relay and leaving the receiver powered on while the key is down. The resulting noise in the headphones while transmitting is by no means unpleasant, and serves as a poor man's sidetone.

An active audio filter provides some audio selectivity. Additional filtering is provided by the careful selection of the capacitor values used between the product detector and the first audio amplifier.

Construction

As can be seen from the photograph, the entire transceiver is built on pieces of unclad matrix board. The receiver board is mounted vertically and is to the right of the main tuning capacitor.

L1 and the 10-70 pF trimmer capacitor resonate on 7 MHz. The inductor is wound on a 9 mm ferrite toroid, 4c6 material. This is Philips part number 4322-020-97160. Undoubtedly, other toroids could be used, with appropriate changes in the number of turns required. The tuned circuit is the only adjustment in the receiver. It is fairly sharp, and needs to be peaked carefully for best receiver performance.

The rest of the circuit is not critical. Use IC sockets so that chips can be replaced if needed.

Operating

With no front panel controls apart from the VXO adjustment and the on/off switch (the potentiometer pictured hides

a mistakenly drilled hole!), using the transceiver is simplicity itself. Just press the key and you're on the air. Let go of the key and you are receiving.

However, you will need to manually adjust your frequency every time you go from transmit to receive (and vice versa). When calling a station, make a mental note of the dial's logging scale and then move the VXO so that the pitch of the incoming signal falls so low that you can no longer hear it. Make your call on this frequency and move back to your original VXO setting to receive the next transmission from the other station. Similarly, when calling CQ, move the VXO's setting after each call so that any answering station will create an audio beat note in your headphones. While it sounds complicated, after a little practice the whole process takes less than a second.

Results

Since the receiver was added in April 1995, contacts with five VK call areas and ZL have been had. Most were made during the day. Experience with an earlier transmitter showed that contacts of up to 3000 km are possible with this type of equipment around dusk. While the rig in its present form is entirely satisfactory for casual operating, a larger tuning range, RIT, better audio filtering and (possibly) a stronger receive front end would be required for serious QRP DX work.

References

1. Amateur Radio magazine, January 1996, page 10 (see also February 1996 issue, page 55)

2. Diamond D, "Little Mate" CW Transceiver, Amateur Radio magazine, June 1996, page 5.

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WIA News

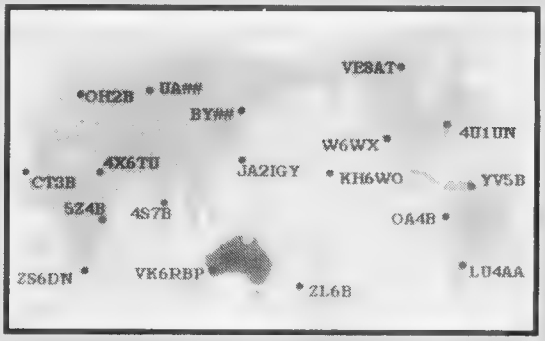
International HF Beacon Network Continues to Expand

The world-wide HF 5-band beacon network, a project sponsored by the International Amateur Radio Union (IARU) and the Northern Californian DX Foundation, now has its 15th beacon established, signing OA4B from Peru, in South America. Eighteen beacons are planned for the network.

Each beacon transmits on 14.1, 18.11, 21.15, 24.93 and 28.2 MHz in sequence over a 50-second period, spending 10 seconds on each frequency. A transmission consists of the call sign of the beacon sent at 22 wpm followed by four one-second dashes. The call sign and the first dash are sent at 100 watts, the remaining dashes at 10 W, 1 W and 100 mW. Each station in the network transmits in turn and each transmission is repeated every three minutes.

The equipment at each site includes a Kenwood TS-50S transmitter, a Cushcraft R-5 vertical antenna, a Trimble Navigation Acutime&trade global positioning system (GPS) receiver (for accurate sequencing of the transmission) and a controller built by the NCDXF.

The accompanying table gives the transmission schedule, the operator and status of all stations in the network as at 7 August 1997. The world map here shows the location of the stations,



present and planned, in the beacon network (courtesy of Will McGhie VK6UU). Further details from *www.ncdxf.org/beacon.htm*, where you'll find details on how to get software for monitoring the beacon network.

Details of the VK6RBP beacon installation at Roleystone, 25 km south-east of Perth, can be found at *www.faroc.com.au/~vk6wia/hf-bcn.htm* on the Web.

[Released 11/8/97]

Slot	Country	Call	14.100	18.110	21.150	24.930	28.200	Operator	Status
1	United Nations	4U1UN	00:00	00:10	00:20	00:30	00:40	UNRC	OK
2	Canada	VE8AT	00:10	00:20	00:30	00.40	00:50	RAC	OK
3	USA	W6WX	00:20	00:30	00.40	00:50	01.00	NCDXF	Not yet on 18 or 24 MHz
4	Hawaii	KH6WO	00:30	00:40	00:50	01:00	01:10	UHRC	Not yet on 18 or 24 MHz
5	New Zealand	ZL6B	00:40	00:50	01:00	01:10	01:20	NZART	Not yet in service
6	Australia	VK6RBP	00:50	01:00	01:10	01:20	01:30	WIA	Low output on 18 MHz
7	Japan	JA2IGY	01:00	01:10	01·20	01:30	01:40	JARL	OK
8	Russia	UA...	01:10	01:20	01 :30	01:40	01:50	?	Does not exist
9	China	BY...	01:20	01:30	01:40	01:50	02:00	CRSA	Does not exist
10	Sri Lanka	4S7B	01:30	01:40	01:50	02:00	02:10	RSSL	No output on 18 MHz
11	South Africa	ZS6DN	01:40	01:50	02:00	02:10	02:20	ZS6DN	OK
12	Kenya	5Z4B	01:50	02:00	02:10	02:20	02:30	RSK	Off air: bad power supply
13	Israel	4X6TU	02:00	02:10	02:20	02:30	02:40	U Tel Aviv	Off air: bad TS-50S
14	Finland	OH2B	02:10	02:20	02:30	02:40	02:50	U Helsinki	OK
15	Madeira	CS3B	02:20	02:30	02:40	02:50	00:00	ARRM	All at 100 watts
16	Argentina	LU4AA	02:30	02:40	02:50	00:00	00:10	RCA	OK
17	NEW Peru	OA4B	02:40	02:50	00:00	00:10	00.20	RCP	OK
18	Venezuela	YV5B	02:50	00.00	00:10	00:20	00.30	RCV	Intermittently garbled

Antennas

10/14 MHz Vertical Antenna

Rodney Champness VK3UG describes a versatile dual band vertical antenna.*

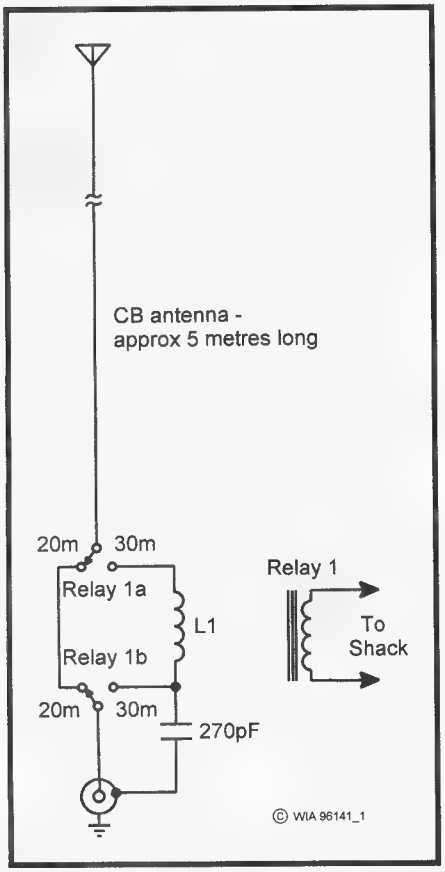


Fig 1 – 10/14 MHz vertical antenna.

This antenna started out as a mono band 14 MHz quarter wave vertical antenna mounted on my garage roof. I felt it was time to try 10 MHz so modified the antenna accordingly to achieve dual band performance.

The 14 MHz antenna can be made from an old 1/2 or 5/8 wavelength CB vertical system. Adjust the length of the antenna for minimum SWR; it is likely to be a bit long to start with, and the ultimate length will be about five metres. The adjustment can be done by sliding the elements inside one another, hence, if you make it too short, you can slide the element out a bit. The SWR on the antenna will be below 1.5:1, particularly as the roof slopes away from the apex. The roof is the earth/groundplane and I have found that the antenna is more effective than my 5/8 wavelength 14 MHz antenna.

Having tuned up the 14 MHz antenna it is time to insert the band switching relay and tuning/matching components for 10 MHz. 14 MHz is selected with the relay in the un-energised condition. Once inserted in the antenna line you may find that the antenna has to be shortened a few centimetres.

The antenna is, of course, too short for 10 MHz so a base loading coil is switched in by the relay. It is wound on a piece of 32 mm o/d plastic water pipe. The wire is 18 B&S enamelled copper and approximately 12 turns are wound over a length of 7 cm to tune to 10 MHz. The antenna will be approximately tuned to 10 MHz but, as it is physically shorter than 1/4 wavelength, the feed impedance will be considerably lower than 50 ohms. Therefore, the 270 pF mica capacitor is put in the line to match the antenna to the 50 ohm line.

With this in line (as shown in Fig 1), adjust the number of turns for the lowest SWR. If you have a noise bridge, or an antenna analyser, it will be much easier to do. The antenna is switched to 10 MHz when the relay is energised.

Another possibility is to make the antenna a 1/4 wavelength on 10 MHz, and over a 1/4 wavelength on 20 metres. With this configuration there may be slightly more ERP.

Most of my antennas are remotely controlled for convenience. The switching network needs to be protected from the weather and I leave that for you to do. I used plastic storm-water piping with plastic ends, and butyl rubber to seal the holes where the cables entered the pipe. The antenna works very well on both bands, as it has quite a good groundplane. The base is only 4 metres above ground level.

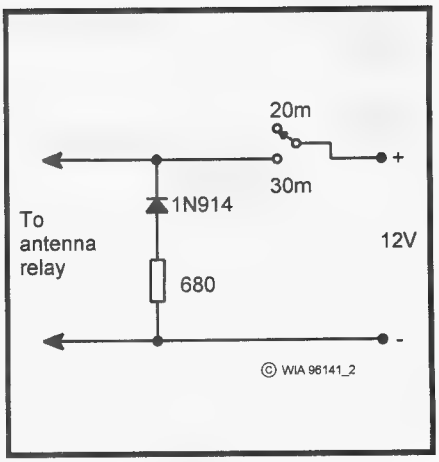


Fig 2 – Band change switching circuit.

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■ History

Time and Frequency

Paul Clutter VK2SPC gives a brief history of the events leading to the present standards of time and frequency.*

Most of this article deals with "time" as apart from frequency but, without the precise duration of the second, our standard of frequency would not be possible.

The subjects related to the development of our present standards are:

1. History of calendars;
2. Solar system;
3. History of clocks;
4. International Bureaus on UTC;
5. Motions of the earth;
6. Millisecond pulsars;
7. WWV and VNG time and frequency signals; and
8. Navigation, plus a few minor related subjects.

The complete story of all these subjects would make a substantial book, so obviously I can cover only the important highlights from each subject.

The Beginning

For people who lived before the dawn of history, there was no such thing as a timepiece or awareness that the earth was moving. Their world was a small patch of land bounded by distant hills and perhaps the blue line of the sea. Overhead was the rising and setting of the sun and the brilliant stars at night. A few inquiring minds became the first astronomers watching the sky and making crude observations. They numbered the days, divided the daylight into 10 parts plus one for dawn and one for dusk, and divided the night into 12 parts by the constellations. They thus established the 24 hour period, without clocks to equalise each hour.

Also, at this stage there was no accepted knowledge of the rotation of the earth. It was not until 1543 AD, when Copernicus published his book "On the Revolutions of the Heavenly Spheres", that serious studying of the earth's and planets' movements was started by Galileo, Kepler, Newton, and other astronomers. This book was finished in 1530 AD but Copernicus (then 57 years old) waited 13 years before publishing it, in fear of reprimand from the Church. He died a few days later. His book was immediately put on the forbidden list by the Church and was not removed until 1757 when finally the weight of proven scientific knowledge forced the Church to remove it.

In the early years of 1600 AD, Galileo believed Copernicus was right in his thinking and studied through his crude "optic tube" (telescope). He published his observations that the sun was the centre of the solar system. When the Pope heard of this, he issued a decree declaring the earth was the centre of the whole universe!

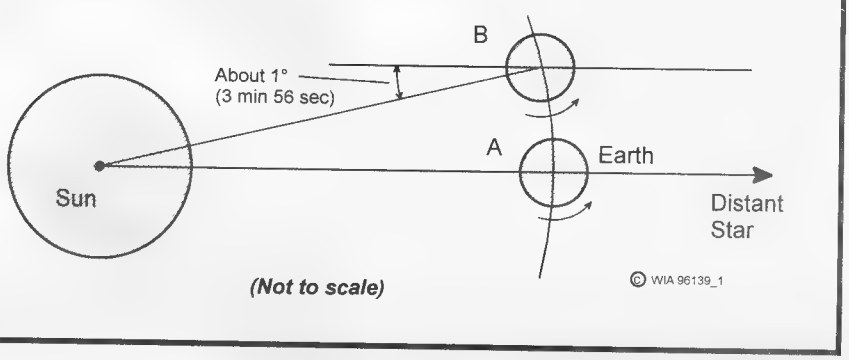

Fig 1

Timepieces

Scientists could not make any progress or promote knowledge without suitable timepieces relevant to their particular time in history. The earliest record of devices to measure time and/or to segment the day into parts goes back to about 3000 BC when sundials, shadow sticks, and obelisks gave a rough estimate of short intervals of time. Progress was slow with the hourglass, marked candles, incense burning, and water devices which started the first recorded escapement principle (725 AD).

Gradually, crude clocks appeared in Europe made mostly with carved wooden gears, etc. These were called "turret" clocks and had no hands but struck a bell or gong every hour. The word "clock" comes from the Latin "clocca", meaning a bell. Horology is the art or science of making timepieces or of measuring time.

One of the first mechanical advancements was a mainspring axle drive (1500 AD), replacing large suspended weights, leading to smaller hand watches. By 1656, Huyghens, a Dutch scientist, built the first pendulum clock accurate to a few seconds per day. It may not have had a "minute" hand as the earliest record of minute hands was about 1670 AD.

Navigation

During the years when clocks were slowly improving, navigation methods were undergoing a similar process. It became obvious that an accurate timepiece was needed which could be taken on ships for calculation of longitude. The only accurate clocks before 1734 were pendulum types. The British Government in 1714 offered 20,000 pounds for a suitable clock accurate to half a degree longitude. From 1726 to 1734, John Harrison produced a monster weighing 72 pounds. This was tried and proved encouraging after which the Government gave him 500 pounds to update more clocks.

In 1761, Harrison produced his No 4 clock, about the size of a modern alarm. In a five month voyage it lost only 15 seconds (accurate to 1/50th degree) and was a huge success. Harrison received more money in 1773, three years before his death. Other chronometers followed

from many clock makers and there were at least six different types of escapements, lever, anchor, deadbeat, recoil, gravity, and chronometer style.

Time Standards

Meanwhile, as clocks progressed, astronomers were busy studying the timing of the earth trying to establish duration standards for the hour, minute, and second. In 1820, a French committee of scientists recommended the second to be 1/86,400th of the mean solar day averaged over a year (60 sec x 60 min x 24 hrs = 86,400 sec). This, of course, was to keep in step with the earth which dictated the time of rotation.

In 1875, representatives of about 17 nations set up the beginning of the BIPM, the Bureau International des Poids et Mesures (International Bureau of Weights and Measures) under various other technical committees with an international staff of about 60 scientists. In 1884, Greenwich Mean Time was adopted as the international standard, but not completely unified for the whole world. In 1900, the National Physical Lab in Teddington, England was established. In 1901, the National Bureau of Standards was started at Washington, DC (after 1980 this became the National Institute of Standards and Technology – NIST).

In 1912, the French Bureau of Longitudes called for an international scientific conference to consider a worldwide unification of time keeping. In 1913, 36 nations adopted the Association and Bureau of the Hour (BIH), but it was not ratified until 1920 due to the outbreak of World War 1.

However, the BIH began operations at the Paris Observatory. In 1919, the International Astronomical Union (IAU) was started and a time commission set up. Finally, on 1 January 1920, the BIH was established on an international basis and, until 1960, the international time scale was still based wholly on the earth's rotation, 1/86,400 for the second.

From 1920, for about the next 40 years, clocks steadily improved. The best at 1921 was W H Shortt's double pendulum clock accurate to one second in 10 years. In 1928, W B Marrison and J W Horton produced the first quartz clock accurate to 1000th of a second per day.

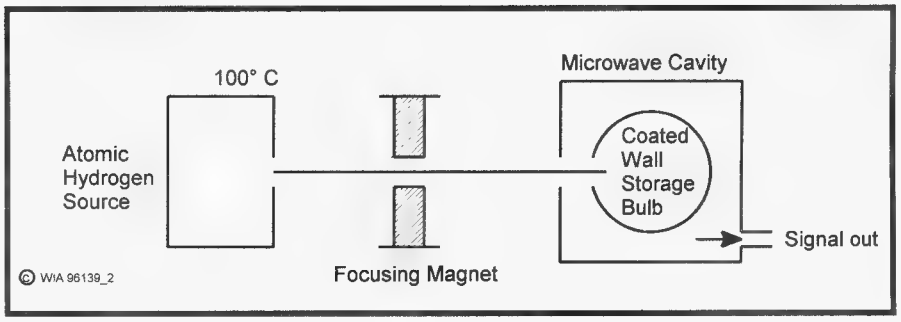

Fig 2.

Slowing Down

During these years, many astronomers and scientists observed the inevitable; the earth was not keeping accurate time (it was slowing down). Then, in 1939, H Spencer Jones (an English astronomer), startled the scientific world by being the first to announce that the earth was not keeping accurate time.

From the 1940s, various laboratories were busy working on atomic clocks to increase the accuracy and stability of time keeping. In 1955 the US Naval Observatory and the National Physical Lab in Teddington jointly established the natural resonant frequency of Cesium 133 to be 9,192,631,770 Hz. Then, in 1957, the National Bureau of Standards in the USA completed two Cesium beam devices after which the BIH established the resonant frequency of Cesium 133 which became TAI (International Atomic Time).

Before TAI was established, the time commission between 1960 and 1967 decided to use EPHEMERIS timing which is the duration of the earth around the sun. This amounts to 31,556,925.9747 seconds (based on the year 1900) with an annual increase of .0001 second. Thus, the second became 1/31,556,925.9747 (plus annual increases), but only for seven years.

Leap Seconds

From 1967, time was returned to the earth's rotation while atomic time continued but no correction was made until 1 Jan 1972 when 10 seconds was added to bring them into alignment. Thereafter, "leap" seconds are added on an average of about 16 months but at predetermined times as set up by the time commission now known as the IERS (International Earth Rotational Service).

The slowing is about 0.9 second (900 milliseconds). Leap seconds are inserted at the end of June or December with second preference on 31 March or 30 September. When added, the leap second becomes the 61st second of the last minute of the month, followed by the first second of the next month. For example, from 1955 until 1990 (35 yrs), the earth has lost 25 seconds and if leap seconds were not added, there would have been an accumulated discrepancy between atomic clocks and earth's timing.

The timing of the earth is done by a PZT (Photographic Zenith Tube) and atomic clocks. The PZT is a vertically mounted (fixed) telescope with a camera at the bottom. Distant known stars are photographed periodically and logged on a graph (accurate grid) against atomic clocks which show how much shift occurs over a given period of time. The SIDEREAL time of rotation is 23 hours, 56 minutes, and four seconds plus a changing fraction (milliseconds).

Now, while the 360 degrees is taking place, the earth has advanced more than 1.5 million miles (A to B in Fig 1) in orbit and the centre line through the earth to the stars no longer points to the centre of the sun. To acquire SOLAR time, another three minutes and about 56 seconds (one degree of rotation) is needed to complete the solar time of 24 hours. Thus, the extra three minutes and 56 seconds adds up over four years to an extra day, ie 29 February each leap year.

Masers

From 1947, N F Ramsey, H M Goldenberg, and D Kleppner worked at Harvard University constructing the first hydrogen "MASER" (Fig 2 shows the

basic elements). Maser is derived from Microwave Amplification by Stimulated Emission of Radiation. From 1962, the hydrogen maser increased the accuracy and stability above that of the Cesium clock from 1 second in 30,000 years to 1 second in at least 100,000 years which makes it the most stable oscillator known.

The basic principle of atomic clocks is obtaining resonance by excitation of atoms which separates the electrons from the nucleus but the natural coupling pulls them back into orbit. This disturbance of the coupling creates oscillatory energy which is given off at the resonant frequency of that particular atom. The preparation of the atoms is by heating and magnetic fields which dissociate molecules into a beam of atoms. These enter a bulb (also called a "rhumbatron") inside a resonant cavity where interaction and recombination produces the energy. The natural resonant frequency of a particular atom is determined by the amount of energy in Joules produced under excitation divided by Planck's Constant (6.6262 x 10 to the minus 34th). The following example uses the hydrogen atom as it is the most active and stable.

Freq (Hz) = Energy in Joules/6.6262 X 10-34 = 940.9204 x 10-27/6.6262 x 10-34 = 142 x 107 Hz = 1420 MHz.

The maser storage bulb is usually teflon lined quartz, but experiments by coating it with carbon tetrafluoride at -248 degrees C or liquid helium at 0.5 degrees Kelvin, increased the accuracy and stability considerably but for shorter periods of time. A special type of bulb allows liquid helium to flow through it.

The maser is the largest, consumes the most power and is the most expensive of all atomic clocks, but may become the standard for UTC in the future.

Precision

Examples of modern uses of precision timing with atomic clocks are:

1. Redefining the standard length of the metre which was previously (before 1983) measured by an "invar" rod at the French Bureau of International Weights and Measures. After 1983, the standard length is the distance travelled by light in a vacuum during the interval of 7/299,792,458th of a second (light travels at 299,792,458 metres per second).

2. An aircraft flew for 15 hours at 50,000 ft. with an atomic clock and gained 45 nanoseconds with respect to ground clocks, being in agreement with Einstein's theory of relativity – gravitational potential difference.

3. Atomic clocks are carried on numerous satellites to give accurate time and to facilitate Global Positioning Service and electronic navigation systems.

The time and frequency broadcast formats of WWV and WWVH are given in most ARRL Handbooks (not the 1992 edition). The accuracy and stability of WWV and WWVH are referred to the primary NIST frequency standard and related NIST atomic time scales in Boulder, Colorado. The frequency as transmitted is accurate to about one part in 100 billion and about 0.01 millisecond for timing. The day to day deviations are normally less than one part in 1000 billion. However, the RECEIVED accuracy is far less due to various propagation effects. The usable received accuracy is about one part in 10 million for frequency and about one millisecond for timing.

The history of VNG is well covered on page 26 of the June 1993 edition of *Electronics Australia*. A Cesium beam frequency standard comes from the Telstra Standard Lab in Melbourne via land-line to the VNG complex at Llandillo (about three miles north of Penrith, NSW).

Finally, one other timing object (not man made) is the millisecond pulsar. The fastest and strongest of over 500 known and catalogued, has been timed twice weekly since 1984 and, at 642 pulses per second, has not varied by more than plus or minus two microseconds between pulses. This pulsar is designated as PSR 1937+21 at 1.5578 milliseconds between pulses.

Frequency with Earth Timing Only

You may well ask why a clock cannot be set simply to run at exactly the slowing rate of the earth's rotation, thus achieving the same result as adding leap seconds. Referring to the 25 seconds lost between 1955 and 1990, the duration of the second would be, for example, 1/86,400th of the mean solar day in 1955. However, the duration in 1990 would be 1/86,425th as the rotation would be 25 seconds longer. When you divide a quantity into more parts, each part becomes smaller, obviously. When you measure a fixed number of vibrations in a given interval of time, the frequency reduces in proportion to the lower duration of the second. Therefore, frequencies would keep changing in step with the second, dictated by the slowing rotation of the earth.

It may be of interest to note that millions of years ago the earth rotated faster, say between 18 and 22 hours which would make the second much longer than it is now. Thus, by adding leap seconds, the precise duration of "atomic" seconds is maintained while keeping in step with the slowing earth.

If we measure the resonant frequency of a particular coil and capacitor to be 1000 Hz, then seal it up for a few hundred years and re-measure with "solar time" (1/86,400), assuming about a 10% slowing of the earth, it will measure about 900 Hz. However, by counting the number of vibrations from one to 9,192,631,770 inherent in the Cesium 133 atom, and from one to 1,420,000,000 in the hydrogen atom (oscillations at resonance which never change), the exact duration of the second is established and this becomes universal so long as the atomic structure is the same. Therefore, the coil and capacitor will still measure 1000 Hz by the "atomic" second.

52 Keats Avenue, Bateau Bay, NSW 2261

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WIA News

D-I-Y Ham Magazine Folds

The Radio Society of Great Britain's 'do-it-yourself' *D-I-Y Magazine* ended with the July-August issue, the *ARRL Letter* for 8 August reported.

Pitched at the newcomer to amateur radio, and having an emphasis on construction, D-I-Y Magazine was closed for financial reasons. The RSGB intends to expand the 'Down to Earth' column in their official journal, *RadCom*.

[Released 11/8/97

■ Antennas

Random Radiators

*with Ron Cook VK3AFW and Ron Fisher VK3OM**

First of all, a thought for the month. Have you ever noticed (or is it just something that happens to me) that, whenever you connect up an SWR meter to your transceiver and then sit the meter on top of the transceiver, the input and output leads are always the wrong way around? I always seem to finish up with crossed leads. Perhaps SWR meter manufacturers and transceiver manufacturers don't speak to each other!.

Now, on with the subjects in hand for this month.

Random Wire Antenna Tuner

Further to our description of a random wire antenna tuner of a few months ago, we received an interesting letter from Lloyd Butler VK5BR pointing out a few limitations and improvements for our simple system. We will let Lloyd tell the story.

"In your Random Radiator column of Amateur Radio, May 1997, you discussed an 'L' Match ATU which used series inductance facing the transmitter and shunt capacity across the antenna load of a random piece of wire operated against ground.

"You talked about cutting the length of wire at least a quarter wave length long. The interesting thing about this is that, if the wire happens to be near an exact electrical quarter wave, the antenna would present a purely resistive load of quite a low value and for this condition the 'L' network could not reflect the desired 50 ohms resistive load back to the transmitter.

"An 'L' network of this form cannot theoretically reflect back the 50 ohms resistance if the shunt resistive load is less than 50 ohms. In fact, the minimum load is even more than 50 ohms because of practical limits in the variable range of L and C in the tuner itself.

"Fortunately, however, if the antenna is not an electrical quarter wave, then the low resistance load is in series with series reactance and the tuner output looks into an equivalent parallel impedance of shunt reactance and shunt impedance. When there is no series reactance, the shunt value of resistance is the same as its series value, but with series reactance, the equivalent shunt resistance is a higher value. If the series reactance is sufficient, the shunt resistance is reflected as a value well above 50 ohms and the L match can be adjusted to reflect the desired 50 ohms resistance back to the transmitter.

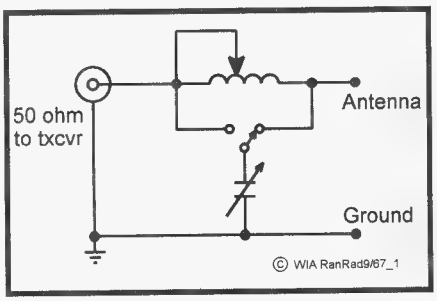

Fig 1

"This is fine, but clearly there is a 'No-Go' region when the load is purely resistive or near resistive and of low resistance value. In an article on the Z match by Graham Thornton VK3IY and myself (Amateur Radio, March 1997), we discussed in detail the theory of this phenomena. The only difference with the Z match is that its output coil introduces its own series inductive reactance and its 'No-Go' region occurs when this is cancelled by antenna capacitive reactance. Again the 'No-Go' anomaly is a function of the L network section of the Z match tuner being presented with a low value near resistive load.

"Having pointed out the 'No-Go' condition, I might make some suggestions on how to improve the simple L match described by the "two Rons". One simple addition is a change-over switch so that the network can be operated with the variable capacitor across the transmitter side of the network (see Fig 1). In this form, the network can reflect back 50 ohms resistance for

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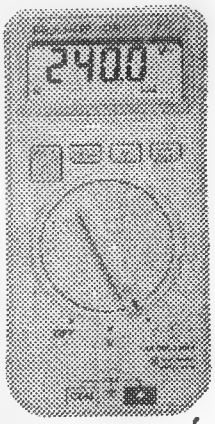

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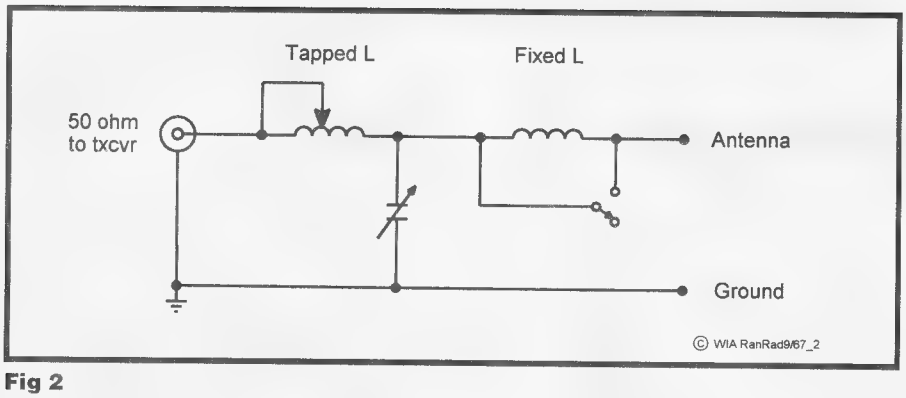

Fig 2

resistive loads of less than 50 ohms (but not above). This will stop-gap most of the 'No-Go' region except when the pure resistive load is around 50 ohms. In that case, reactive values necessary for a match in the L network approach zero or infinity and hence are likely to be outside the adjustment range of the variable L and C. On this, I must add a VK3IY comment: If the load is a pure resistance of 50 ohms, one does not need an ATU at all, so that the ATU could be bypassed.

"Another idea which we originally suggested in our article for the Z match, is to provide a small fixed inductance that can be switched in series with the antenna when required (see Fig 2). This simply shifts the 'No-Go' region out of the resistive range into the capacitive range and out of the way for the purposes of the resistive load situation.

"The third idea is undoubtedly the simplest. If you want the L match to adjust up nicely, just make sure the piece of wire is not too near a resonant quarter wave length. If you fluke the critical length, make the wire a bit longer or a bit shorter".

Thanks for all of that Lloyd. That all makes the operation of the L match coupler easier to understand and I hope will enable our readers to get maximum use out of this simple antenna tuner.

The Single Band Log Yagi

It was several years ago that the single band log Yagi came into prominence amongst DXers. After all, it was claimed by no less an authority than the ARRL Antenna Book that this antenna could produce several dB more gain than a conventional Yagi of the same boom length.

Several DX stations were using these antennas with excellent results so perhaps they were as good as the Antenna Book stated. The only one that we know about in VK3 is owned by Fred VK3AQN. On long-path into Europe, Fred puts out an unbeatable signal but then he does also have an unbeatable location for that direction. Lets have a look at the published data on this antenna.

In the 1988 edition of the ARRL Antenna Book (15th edition) the following figures are quoted for a six element log Yagi. This consists of four elements in the log cell plus a normal director and reflector. The log cell has a boom length of 10 feet with a total boom length of 26.5 feet for the whole antenna. This equates to the boom length of a normal four element Yagi such as the HyGain 204BA or similar antenna.

ARRL quote the forward gain of the log Yagi as an incredible 11.5 dB with a front-to-back ratio of an equally incredible 32 dB. The text of the article states: *"The log Yagi provides higher gain and greater directivity than would be realised with either the LPDA (wide band log antenna, ie 14 to 30 MHz) or a Yagi array alone. The Yagi array requires a long boom and wide element spacing for wide bandwidth and high gain. This is because the Q of the Yagi system increases as the number of elements is increased and/or as the spacing between the adjacent elements is decreased. The log Yagi overcomes this difficulty by using a multiple element 'cell' designed in accordance with the principles of the log periodic dipole array. Since this log cell exhibits both gain and directivity by itself, it is a more effective radiator than a simple dipole driven element."*

Just how much gain the log cell produces is not stated anywhere that we can find but, to reach the stated gain figure of 11.5 dB it would need to be about 6 dB over a three element mono-band Yagi. Quite a gain figure for a 10 foot long log cell driven element system!

Well, it seems that some time after all this was written by the ARRL, they had a change of heart and later editions of the ARRL Antenna Book give the gain at a somewhat more realistic 6.7 dB. Why the difference?

My good friend Morrisson VK3BCY became interested in these antennas and decided to ask a few questions on the Internet. He was surprised when the following answer came back from the editor of the ARRL Antenna Book, Dean N6BV. And we quote *"The problem is that the gains in editions (of the ARRL Antenna Book) earlier than the 17th Edition were stated in dBd (relative to a free space dipole) but over ground. The restated gain in the 27th edition is for the LPDA in free space (hence the gain is deflated by almost 6 dB) and is stated in dBi. The 6.7 dBi stated for the LPDA in free space would gain about 5.5 dB for typical horizontal reflection coefficient (ie reasonable, but not perfect, ground) for a gain of 12.2 dBi peak at maximum lobe. This is equivalent to about 10 dBd referenced to a dipole in free space. Either way is fair provided you specify the conditions. We're being very clear in the 17th and 18th Editions; the earlier editions left too much to the fertile imagination of amateurs. The simple optimised Yagis described in Chapter 11 (Yagi arrays, ARRL Antenna Book) have more gain, better F/R pattern over the whole band, a wider SWR bandwidth and are also far, far simpler mechanically than any LPDA design with parasitic elements. Simplest is best!"*

Thanks Morrisson for passing on this fascinating information. It's often the way, simplest is best in more ways than one.

And with that, it's goodbye from me and goodbye from him!

The two Rons.

**C/o PO Box 2175, Caulfield Junction, VIC 3161*

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Technical Abstracts

*Gil Sones VK3AUI**

Crystal Regenerative Receiver

A novel regenerative receiver which uses a crystal as the frequency determining element is described in *QST*, May 1997. The crystal used is a colour burst crystal on 3,579 kHz and it allows the receiver to receive W1AW transmissions on 3,581.5 kHz. The circuit is the work of Charles Kitchin N1TEV and Mike Murphy WB2UID who are both employed by Analog Devices.

The receiver circuit is shown in Fig 1. The receiver uses two common silicon transistors, a germanium diode and an LM386 audio amplifier IC. The first transistor is used as an untuned RF amplifier which isolates the regenerative stage from the antenna. The second transistor is a regenerative stage. The coil is tuned to the 3.5 MHz band. The coil provides feedback and its tickler winding inductance helps determine the frequency of operation with the crystal. R5 adjusts regeneration and has some effect on the tuning allowing approx 2 kHz adjustment of the beat note. The audio amplifier gain and hence volume can be controlled by the components, R6 and C8, shown dotted.

The diode detector or mixer uses the diode reverse resistance as the DC return path.

A certain amount of fiddling is required initially. The link or tickler winding may need to be reversed in order to obtain regeneration. The components are all fairly non critical and should be easy to obtain. Other frequencies will require different frequency crystals and one of the ceramic resonators may allow a wider tuning range in association with a tuning capacitor. The 1N34 for the original was obtained from Radio Shack as Tandy is known in the USA.

Sensitive Antenna Bridge

Antenna bridges operating at low power levels suffer from low sensitivity due to the characteristics of the detector diodes used at low signal levels. This can be overcome by using an amplifier. A DC amplifier, however, does not overcome the diode characteristics at low signal levels. An RF amplifier before the diode can be useful but needs a balanced input. A suitable design appeared in *RadCom*, July 1997 from Ian Braithwaite G4COL. This design uses an IC RF amplifier NE592 as a bridge amplifier.

The circuit of the bridge is given in Fig 2. The parts should be readily available. The NE592 was obtained from the UK parent of RS Components and their UK

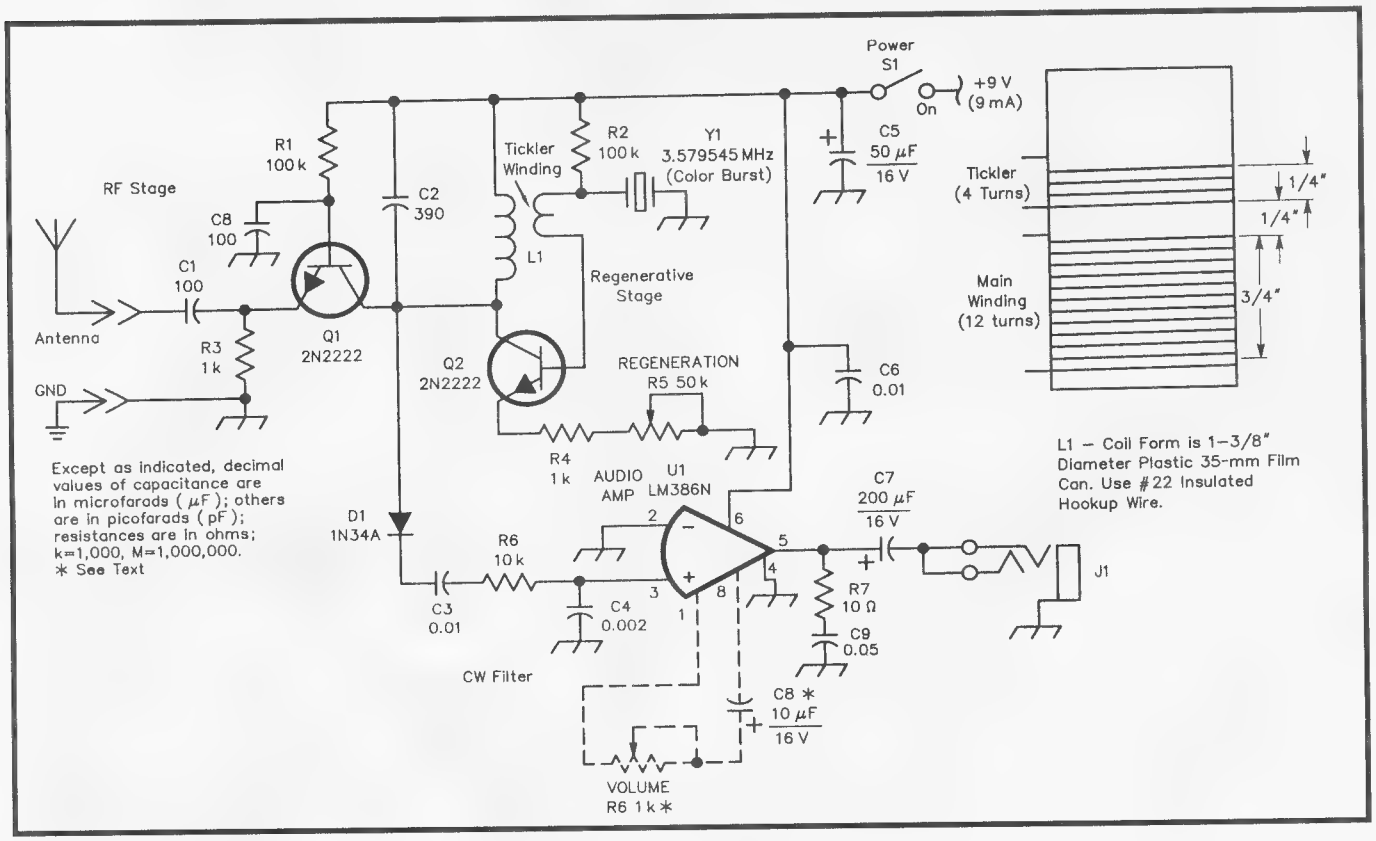

Fig 1. Crystal regenerative receiver.

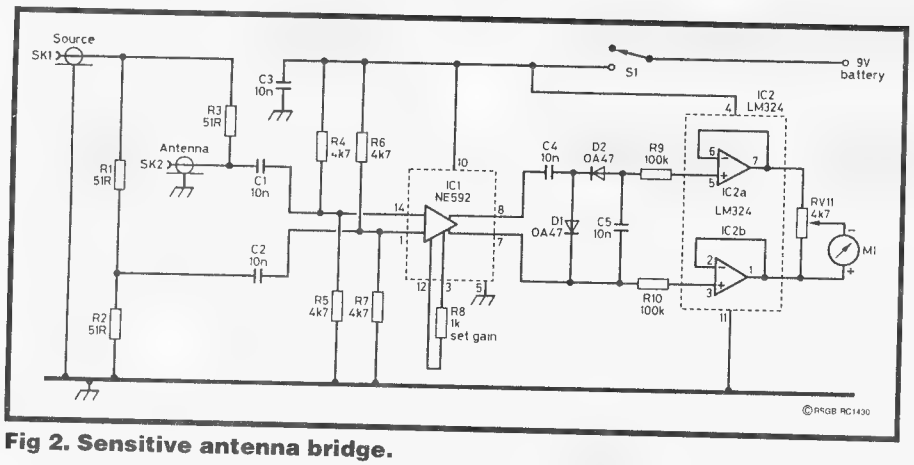

Fig 2. Sensitive antenna bridge.

part number is 301-583. Sensitivity can be adjusted by varying the value of R8. Raising the value lowers gain and increases bandwidth and the converse is also true. The original was useful from 160 to 6 metres. The meter used was a 250 micro-amp type. Calibration can be established with a set of suitable resistors.

The signal to drive the bridge can be obtained from a signal generator or from a transmitter with a suitable attenuator. A suitable attenuator arrangement for up to a 10 watt transmitter is shown in Fig 3. The dummy load should be able to dissipate the transmitter output. This should suit most transceivers which can reduce power to the 10 watt mark.

Wide Band 23 cm Beam

A useful wide-band 23 cm beam appeared in the *Eurotek* column of Erwin David G4LQI in *RadCom*, July 1997. The beam originally appeared in *Radio REF*, January 1997 and the author was Noel Hunkeler F5JIO. The beam is an array of six half wave dipoles in front of a reflector screen. The antenna array is housed inside a radome made from a plastic food container.

The antenna is shown in Fig 4. The coax used is the semi-rigid type which has Teflon insulation. The dipoles are 108 mm long and are 6 mm in diameter. The phasing lines are 2 mm diameter wire. The reflector is a sheet of 2.5 mm thick aluminium, 400 mm square. The stand-offs were 20 mm diameter Teflon and were 60 mm long. The phasing wires should not touch at the crossover points and a slight bend is in order.

The radome is a plastic food container. A small sample could be tested for RF absorption in a microwave oven, but remember to use a glass of water in the microwave as a load. If the sample is cool when the water boils the container should be suitable.

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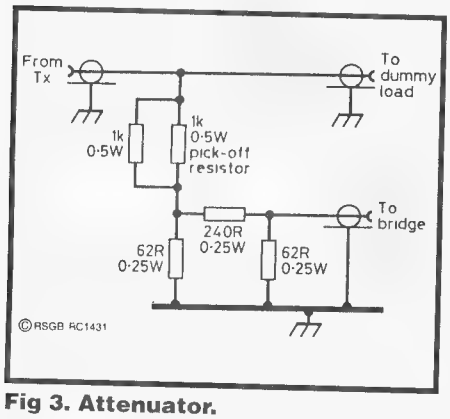

Fig 3. Attenuator.

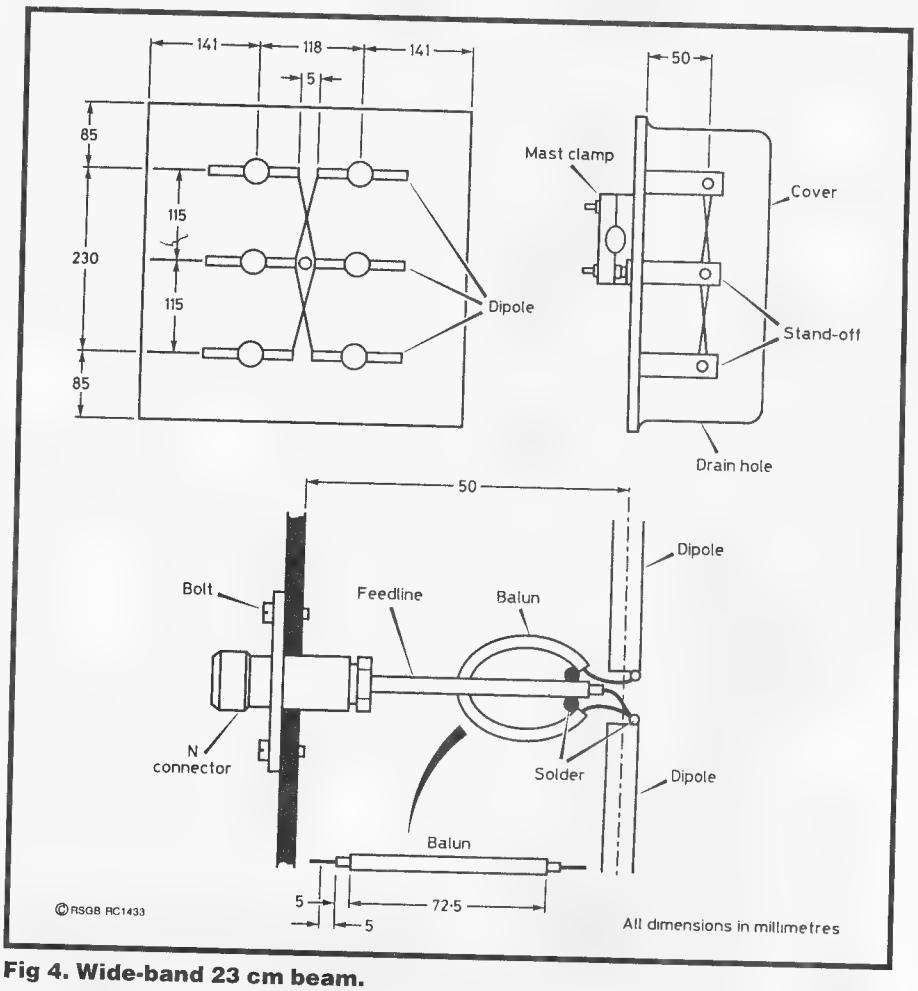

Fig 4. Wide-band 23 cm beam.

Have you advised the ACA of your new address?

Operating

1997 Remembrance Day Contest Opening Address

The 1997 Remembrance Day Contest Opening Address was delivered by Mr Bruce Ruxton AM OBE, President of the Victorian Branch of the Returned & Services League since 1979.

Bruce is well known in Australia and around the world for his outspoken comments on many matters, all of which are part of the RSL's policy.

Mr Ruxton is a returned serviceman – he served in the 2125 Battalion of the 7 Division, and served in the SWPA. He was at the landing at Balikpapan and was later with the Commonwealth Occupation Forces in Japan. His life is devoted to the RSL and its members. Each morning in his office at Albert Park he sees ex-servicemen and women and their families to assist them in dealing with any problems to do with repatriation, health, pensions and other related matters.

Afternoons usually find him at Anzac House where he handles the day to day issues of the RSL. At all times he is prepared to talk to anyone who wants to see him. He does his work full-time, unpaid.

In the course of his work, Bruce Ruxton has visited Russia four times, Taiwan three times, Turkey (including Gallipoli) three times, Canada twice, New Zealand three times, United Kingdom five times, Belgium, France five times and South Africa twice, as well as making many trips to South East Asia, including China twice, Malaysia and Indonesia.

He believes he is sometimes misrepresented in the press, particularly on immigration and aboriginal issues. A real concern he has is what he terms the foreign take-over of Australia, the buying up of real estate. This is a concern

Mr Bruce Ruxton AM OBE

widely held in the Australian community, yet Bruce Ruxton believes he is unfairly portrayed as a racist. He sees himself as "a good bloke, a simple bloke" whose most important job is to speak up for the veterans.

Bruce Ruxton is much in demand throughout Australia as a vital, interesting and witty speaker. His audiences are never disappointed.

The Opening Address

"As the Victorian State President of the RSL and the Deputy National President of the RSL, I'm honoured to have been asked to give the opening address for this Remembrance Day Contest which marks the 52nd anniversary of the end of World War II and the 79th anniversary of the ending of World War I.

"I just want to say a few words about Gallipoli if I may.

"I've been there a few times, fortunately, and of course I would like to go back again and again because each time one goes back there one learns something more. In 1990 I had the privilege of helping to make a film, a documentary, on that Campaign and it was a one hour documentary which was shown on television and that was a great experience for me.

"But prior to that in 1987 I led a large group of people to ANZAC Cove for ANZAC Day and I had the added privilege of giving the Dawn Service address. That morning, I might add, the service started off in the dark and we had little candles to read the program we'd had run off and out of the darkness that morning, loomed, and I use that word, some 350 young people. Mainly Australians, but there were English and New Zealanders amongst them and each year up until 1990 that figure increased dramatically because in 1990 when that 75th Anniversary of the landing at Gallipoli took place some 8000 young people left the shores to go to that Service and each year since then there's been between three and four thousand. Even during the Gulf War, which was on at the time, just down the road, 3000 young people attended the Dawn service at Gallipoli.

"Now to you people who are wireless transmitters. Wireless. That's a name that of course older Australians are well conversant with. The wireless. You don't hear it said very often. As a matter of fact it puts a time on you. But I would suggest to you, all of you, your predecessors in particular have played an enormous part in the defence of this country and in war. An enormous part. I know from my own mates who were in the New Guinea Air Warning Wireless. Many of them were Amateur Radio Operators before the war and, of course, those men with the coast watchers were out behind lines sending back the signals that virtually saved Australia.

"So thank you very much all of you for allowing me to speak to you. I now open this Remembrance Day contest and wish you all well."

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■ Measuring

Converting a Linear Reading Meter To SWR Figures

Paul Clutter VK2SPC describes how to work out SWR calibrations for a linear meter.*

If you require any meter to give SWR figures, but the scale is not marked as such, as could be the case for homebrew construction or when replacing a meter in an SWR device, the easy formulas given here can be used to calculate the SWR reading using the meter scale. The first and most important thing needed is the fractional power related in figures to the meter scale.

Assuming a meter has 50 divisions, as a 0-50 micro-ammeter has, it follows that half scale at 25 would be 25% power relative to the power at full scale deflection (FSD). This is simply because half scale is half voltage and half current, and this produces quarter power (25%). Likewise, one third scale is one ninth of full scale power. The exact amount of power for full scale deflection does not matter because SWR figures are only ratios and these hold true for all FSD values.

An example is, after calibrating FSD on forward, a reading of 5 is obtained in the reverse or reflected mode on the SWR meter. The reading of 5 is one tenth of the FSD of 50 and so is one tenth voltage and one tenth current, which represents one hundredth power. Therefore, the reflected power is only one hundredth of the forward power. Next the reflection coefficient is needed and is calculated by taking the square root of the reflected power divided by the forward power. The reflection coefficient is designated by the Greek letter rho (ρ).

$$\rho = \sqrt{((P_{rev}) / P_{fwd})}$$

Using 50 watts for forward power one hundredth of 50 watts equals 0.5 watt of reflected power.

$$\rho = \sqrt{((0.5) / (50))} = \sqrt{(0.01)} = 0.1$$

So the reflection coefficient is 0.1 and it is related to SWR by the formula:-
SWR = ((1+ρ)/(1-ρ))
So, when the reflected meter reading is 5, the SWR is:-
SWR = ((1+0.1)/(1-0.1)) = 1.1/0.9 = 1.22:1
The SWR for a reflected reading of 5 is 1.22:1.

Well, what if the FSD is only five watts instead of 50 watts, and you still get a reverse reading of 5 on the meter? Again, five is one tenth of FSD and power is still one hundredth of FSD. One hundredth of five watts is 0.05 watt.
So:-

$$\rho = \sqrt{(0.05 / 5)} = 0.1$$

and
SWR = ((1+0.1)/(1-0.1)) = 1.22:1
which is the same as with 50 watts of forward power.

Another example is when the meter is divided into 30 divisions, and using five watts of forward power (FSD) resulting in five for the reflected reading. This gives a reflected reading of one sixth of the forward reading which is one thirty sixth of the forward power which is 0.1389 watts.

$$\rho = \sqrt{(0.1389 / 5)} = 0.167$$

SWR = ((1+0.167)/(1-0.167)) = 1.4:1

Now comes the obvious question. Why do we get a different coefficient of reflection and SWR when we get the same reflected reading of five? The answer is that the ratio of five divisions to 50 divisions is one tenth, and is different from the ratio of five divisions to 30 divisions which is one sixth. Therefore, we get different reflection coefficients and SWR values.

Now that we can calculate an SWR reading for any number of divisions of the meter scale, here are tables of reflection coefficients and SWR values for meters scaled 0 to 50, and 0 to 100 divisions.

Table 1 is for meters scaled 0 to 50, and Table 2 is for meters scaled 0 to 100.

VK QSL BUREAUX

The official list of VK QSL Bureaux. All are Inwards and Outwards unless otherwise stated.

VK1	GPO Box 600 CANBERRA ACT 2601
VK2	PO Box 73 TERALBA NSW 2284
VK3	40G Victory Blvd ASHBURTON VIC 3147
VK4	GPO Box 638 BRISBANE QLD 4001
VK5	PO Box 10092 Gouger St ADELAIDE SA 5000
VK6	GPO Box F319 PERTH WA 6001
VK7	GPO Box 371D HOBART TAS 7001
VK8	C/o H G Andersson VK8HA
	Box 619 HUMPTY DOO NT 0836
VK9/VK0	C/o Neil Penfold VK6NE
	2 Moss Court KINGSLEY WA 6026

Table 1 - Meters scaled 0 to 50.

Reflected Meter Reading	Reflection Coefficient	SWR
0.5	0.01	1.02
1	0.02	1.04
2	0.04	1.08
3	0.06	1.13
4	0.08	1.17
5	0.1	1.22
6	0.12	1.27
7	0.14	1.33
8	0.16	1.38
9	0.18	1.44
10	0.2	1.5
15	0.3	1.86
20	0.4	2.33
25	0.5	3.0
30	0.6	4.0
40	0.8	9.0

Table 2 - Meters scaled 0 to 100

Reflected Meter Reading	Reflection Coefficient	SWR
0.5	0.005	1.01
1	0.01	1.02
2	0.02	1.04
3	0.03	1.06
4	0.04	1.08
5	0.05	1.11
6	0.06	1.13
7	0.07	1.15
8	0.08	1.17
9	0.09	1.12
10	0.1	1.22
15	0.15	1.35
20	0.2	1.5
25	0.25	1.67
0	0.3	1.86
40	0.4	2.33
50	0.5	3.0
60	0.6	4.0
80	0.8	9.0

Technical Editors Note

The accuracy of most SWR meters is such that the readings are subject to considerable error. This should be borne in mind when carrying out the calculation of SWR. They do, however, provide a basis of comparison when matching an antenna, and provide an indication of any change in the feedline and antenna.

** 52 Keats Avenue, Bateau Bay, NSW 2261*

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■ Book Review

Build Your Own Intelligent Amateur Radio Transceiver

Publisher: *McGraw-Hill*

Author: *Randy L Henderson*

Reviewed by: *Bill Rice VK3ABP – review copy direct from McGraw-Hill – ISBN: 0-07-028263-3 – hard cover – retail price $69.95.*

Very few amateurs in these past 20 or 30 years have built their own "state of the art" SSB transceivers. The art has progressed beyond the average amateur, and a commercial rig with all the "bells and whistles" only needs money to acquire it.

I speak as one who built his own all-analogue transceiver early in the 70s and operated it both fixed and mobile for close on 20 years. But the more recent microprocessor-controlled gear, I thought, was beyond all but the commercial engineers.

Now we find that this "ain't necessarily so". Randy Henderson, who has been a Technical Editor with the ARRL for much of his career, has shown us in this book how digital control and synthesis can be designed almost on the kitchen table, and made to do what one expects from a modern transceiver.

All the necessary circuitry is described in detail, its theory explained, and its practical realisation shown. Even things such as the optical shaft encoder for the main tuning control are skilfully achieved using readily available domestic hardware.

In total, the book is not only a "how to do it" text, but is also a handbook of modern engineering practice and its theoretical background. I found it enthralling (not a word one usually applies to textbooks!), and if I had a little more spare time, a digital transceiver would be starting to appear on my drawing board too.

The only mystery still unsolved is "what is Randy's callsign?" Nowhere in the book does it appear. His XYL gets a mention (N5IZZ) but not his own call. No doubt there is a good reason for this.

But whether he has a current callsign or not, his book may well get on to the air many new home-brew digital synthesis transceivers.

It **IS** possible after all!

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ALARA

Sally Grattidge VK4SHE, ALARA Publicity Officer*

New Members

A warm welcome is given to new members Trish VK6QL and Joy G4OUZ.

Congratulations

We all offer our congratulations to Pat VK4PT and Ted VK4EWR for their Golden Wedding anniversary on 12 July this year.

This and That

Tina VK5TMC and Jean VK5TSX are attending Morse code classes ready to upgrade and are finding it slow work. Don't give up girls.

YL lunches are held monthly in Adelaide, Melbourne and Perth. If you find yourself in one of these cities, contact one of the locals for more information.

Dot VK2DDB is going to learn botanical drawing, and wondering if she will be able to design a new plant.

Choon HL1ASD is back in Korea after visiting her children at boarding school in Sydney. She visits Sydney about four times a year for this reason, and likes to keep in touch with VK YLs as much as she can.

Raija SM0HNV, who attended the ALARAMEET in Perth last year, celebrates 40 years on the air this year. Her original callsign was OH2GX. Is this a record? Raija put a very nice report, complete with photograph, about the Perth ALARAMEET in the YLRL official publication, *YL Harmonics*, May/June issue.

Angelika G0CCI went to Germany for the Friedrichshafen Amateur Radio Convention (the biggest in Europe). She has been going since 1985 and has made many friends. Angelika particularly enjoys the UL Social where 200 or more YLs gather. Friedrichshafen is on the Swiss border, making it a good destination to include in a holiday trip.

Happy Birthday

CLARA is 30 this year and they are celebrating with a Gala on 26 to 28 September. Gwen VK3DYL will be there, but if you can't wait for her report try *http://www.osha.igs.net/~lsolomon/clara/clara.htm* or *http:/www.yoy.net/~rfi/yl.htm*

Other ALARA YLs who will be there include Elizabeth VE7YL, Lois WB3EFQ, Aola ZL1ALE and Biny ZL2AZY.

ZL News

from Marg ZL3UD

Due to lack of response to a change of frequency, all nets will be on 3.695 MHz +/-.

The NZ WARO Achievement Award, the Myrtle Earland Rosebowl, was awarded this year to Celia ZL1ALK for outstanding services to WARO over the past 36 years. A certificate for 30 years continuous membership was presented to Aola ZL1ALE. Congratulations Celia and Aola.

The WARO Youth Examination Award went this year to Gloria Hewer ZL2WGH who is only 10 years old.

WARO is considering holding a DX YL meet in the year 2000, and a sub-committee has been formed to look into the idea.

Contests

The YLRL Sponsored Contest Howdy Days on CW and SSB will be held from 1400 UTC on Thursday, 18 September to 0200 UTC on Saturday, 20 September.

The 26th JLRS Party Contest Phone section will take place from 0300 UTC on Saturday, 27 September to 0300 UTC on Sunday, 28 September; and the CW section will take place from 0300 UTC on Saturday, 4 October to 0300 UTC on Sunday, 5 October (details in the July *Newsletter*).

Convention

If you are in North Queensland in September, call in to Townsville and join in the fun at the North Queensland Convention on 26, 27 and 28 September. There is usually a good roll up of YLs, plenty of interesting activities, and plenty of tropical sunshine to enjoy.

**C/o PO Woodstock, QLD 4816*
Tel: 077 788 642
Packet: VK4SHE@VK4RAT.#NQ.QLD.AUS.OC
Internet e-mail: rgrattid@ozemail.com.au

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WIA News

New WIA Members

The WIA bids a warm welcome to the following new members:

J M	Grodzicky	L10170
R	Manning	VK1ZRM
K	Yamashita	VK2IY
J	Nelson	L21053
R C	Selby	VK2MNP
H	Johnson	VK2GLX
G D	Cole	VK2WPM
I S	Wilkinson	VK2PKB
E N	Napper	VK2FIN
B	Van Der Broek	VK2FAU
N H E	Weste	VK2AKR
W	Memphis	VK2TEV
B	Walker	VK2HOT
G	Pierce	VK2TMM
M C	York	VK2MY
E S	Dening	VK2IF
P L	Portelli	VK2DNL
A	Bode	VK3AIB
G	Jarry	VK3MIL
G	Ganegoda	VK3TXL
B	Dusting	VK3FHY
S	Brown	VK3MEQ
L	Ligt	L31543
J W	Stacpoole	L31544
C	Engler	VK3HCE
M	Van Bladel	VK3JJB
M	Smith	VK3MDS
P	Lindsay	VK4TO
R	Barmore	KB9GKX
R	O'Mahoney	VK4TUP
B	McCarthy	VK4WMC
T	Johnston	L40380
R	Mattiske	VK4KIE
J	Couvaras	VK4DAB
E	Davis	VK4KR
E	Reynolds	VK4BER
M	Patterson	VK4HBO
J	Maudsley	VK4YJV
D P	Taykor	VK5WA
C R	Willmer	VK5NEW
G D	Mair	VK5HII
G D	Orr	VK6ZGD
A S	Johnston	VK6SWR

Teen Amateur Net

For the younger amateur, there's an on-air net happening every Tuesday night, which may be found on 3613 kHz from 0730 UTC. An initiative of Dean ZL1JJ, based on a similar concept operating in Europe, the net's been going since August 1996. First meeting on the ZL national UHF system, the 80 m frequency was added in July.

If you're on packet, you can send a message to Dean at his packet address, *ZL1JJ@ZL1AB.#11.NZL.OC*. TeenNet is also on the international teletext system. Log on to your local BBS and type TT at index page 109. For Web surfers, hit the TeenNet home page at *www.fibo.hogent.be/~on4bds/TeenNet.html*. Thanks to *Qnews*, from Graham Kemp VK4BB, for that.

[Released 11/8/97]

AMSAT Australia

*Bill Magnusson VK3JT**

National co-ordinator
Graham Ratcliff VK5AGR
Packet: VK5AGR@VK5WI
E-mail: vk5agr@amsat.org
AMSAT Australia net:
Control station VK5AGR
Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.
Frequencies (again depending on propagation conditions):
Primary 7.064 MHz (usually during summer).
Secondary 3.685 MHz (usually during winter).
Frequencies +/- QRM.
AMSAT Australia newsletter and software service
The newsletter is published monthly by Graham VK5AGR. Subscription is $30 for Australia, $35 for New Zealand and $40 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:
AMSAT Australia
GPO Box 2141
Adelaide SA 5001
Keplerian Elements
Current keps are available from the Internet by accessing the AMSAT FTP site, *ftp.amsat.org* and following the sub-directories to "KEPS".

Possible Further Delay in the Launch of Phase 3-D

It was announced late in July that there may be a further delay in the launch date of the Phase 3-D satellite. AMSAT was informed some months ago by the European Space Agency (ESA) that, following analysis of data from the Ariane 501 flight, they had significantly increased their estimates for the acceleration and vibration environments which spacecraft riding on Ariane 502 are expected to encounter. As a result of this new information, AMSAT has been re-evaluating the structural capabilities of the Phase 3-D space frame. An independent structural engineer was brought in to review the spacecraft's design and construction. His report stated that, in order to be confident of surviving these increased launch environments, a number of modifications must be made to the spacecraft. Substantial effort has been taking place at the Phase 3-D Integration Laboratory in Orlando, Florida to manufacture and install the recommended structural parts necessary to increase the spacecraft's vibration and acceleration capability.

At a meeting in mid-July attended by Dr Karl Meinzer DJ4ZC, ESA officials re-iterated their intent to launch A-502 at the end of September and said that the launch campaign for this flight had already begun. They stated that, as part of this launch campaign, the Phase 3-D spacecraft must arrive in Kourou by 10 August 1997.

Dr Meinzer made it clear to the ESA officials that this work, made necessary by ESA's new environmental information, would prevent AMSAT from delivering the spacecraft to Kourou by the specified 10 August 1997 date. Thus, it was the conclusion of the meeting that, as a result of these ESA specification changes, the Phase 3-D schedule and that of ESA for Ariane 502 are not compatible. Therefore, unless something changes, which ESA does not presently contemplate, Phase 3-D will not be able to be launched on Ariane 502.

To compound the bad news, in order to maintain the planned mass characteristics of the Ariane 502 vehicle, AMSAT must supply a mass simulator representing the Phase 3-D spacecraft to be sent aloft on the flight. This must be in Kourou by 5 September 1997. Despite this very bad news, Dr Meinzer and other AMSAT officials expressed some degree of confidence that the Phase 3-D may yet fly on Ariane 502. They based this on a number of activities taking place in the preparation of the launch vehicle that they believe could cause a slip in the currently published ESA schedule.

The ESA officials attending the Marburg meeting said that, if a slip should occur, which they do not currently contemplate, which results in the two schedules again becoming compatible, efforts would be made to substitute the Phase 3-D spacecraft for the mass simulator. Therefore, AMSAT is continuing the work of completing the necessary structural modifications to the spacecraft, and conducting environmental testing. AMSAT-NA President Bill Tynan W3XO pointed out that revelations such as the increased vibration and acceleration requirements now imposed on the Phase 3-D spacecraft are not all that unusual in a development program such as the Ariane 5. He felt sure that the situation is as unpleasant for ESA as it is for AMSAT, and believes that ESA will be working on ways to reduce the environments on future Ariane 5s, possibly even on 502. Bill stressed that this situation is NOT a matter of poor engineering, or bad faith, on the part of ESA, but merely what sometimes happens when the state of the art is being pushed. The above information supplied by Karl Meinzer and Bill Tynan.

MIR Space Station Still in the News

News of the on-going problems on board the "crippled" MIR still dominate the evening news broadcasts. It seems that a "rescue mission" is under way as this goes to press. I was prompted to see if all the news was indeed bad so I tried for a connect to the MIR PMS a week or two ago and was pleasantly surprised to find the device responding as usual.

Mike Foale has reported a couple of occasions since the collision when the TNC suffered a power outage causing loss of all data stored in memory. Hopefully, a new TNC with memory backup will be carried to MIR shortly. On mentioning this to some friends they suggested that a few paragraphs on the mechanics of working MIR might not be a bad idea to spur some activity and perhaps give someone the slight push needed to get started in satellite working. So here goes...

Nowadays, the majority of crew members on MIR are licensed amateur radio operators, but they are very busy people. Their day to day chores take precedence over any recreational activity like amateur radio. To complicate matters even further, they have to sleep! They also work to Moscow time on the MIR so all this means your chances of having a voice QSO are pretty remote. Most of the voice QSOs I have had over the years have been a result of scheds.

It was much easier a few years ago. The schedule seems to be a lot tighter these days. You hear of people having unscheduled contacts but they are rare .... you can be lucky!

The packet radio set-up on MIR has a special significance in that it is turned on most times and it is by far the easiest of all amateur radio space contacts to make. The equipment requirements are modest and the signal is strong and reliable. In fact, making contact is a piece of cake. The only hard part is knowing when to try and when NOT to try. MIR is like any other satellite in low-earth-orbit in that it orbits the Earth many times per day and therefore moves rapidly across the sky of any earth-bound observer. If you have even the simplest 2 metre packet radio station, the only other thing you will need is a tracking program. The kep elements needed to keep it up to date are posted frequently

(some would say TOO frequently) on packet BBSs.

The callsign of the MIR PMS is r0mir-1 (that 0 is a zero). The frequency in use at present is 145.985 MHz (simplex). There is some Doppler shift and to compensate for this requires a lot of practice and separate control of transmit and receive frequencies or a computer program and interface.

With a simple set-up it's best not to worry about it. Just try to make your contact when MIR is close to your QTH rather than when it is just coming up or going down. You will hear of stations using elaborate, high gain tracking antenna systems but it is quite possible to make contact using nothing more than a ground plane and a few watts. Here is a typical packet radio contact with the MIR PMS, taken from my WinPack capture file.

```
R0MIR-1>CQ <UI R>:
c r0mir-1
*** CONNECTED to R0MIR-1
Logged on to R0MIR's Personal Message System
CMD(B/H/J/K/KM/L/M/R/S/SR/V/?)>
j
VK3JT  07/14/97 10:50
ZL3UCP         07/14/97 10:50
VK7KT 07/14/97 10:50
ZL3GF 07/14/97 10:50
VK5AJW         07/14/97 10:48
VK5PGT         07/14/97 10:48
VK2JYE         07/14/97 10:47
F1TRE 07/14/97 10:12
LZ3RC 07/14/97 10:12
UT4NF 07/14/97 10:12
DG2TOM         07/14/97 10:10
IK6UGE         07/14/97 10:10
F6CBL 07/14/97 10:10
ON1APG         07/14/97 10:10
F5BQP 07/14/97 10:09
F5THQ 07/14/97 10:09
F1OXT 07/14/97 10:08
PI4NAF         07/14/97 10:08
CMD(B/H/J/K/KM/L/M/R/S/SR/V/?)>
l
```

Msg #	Stat	Date	Time	To	From	@	BBS	Subject
168	P	07/14/97	09:56	KB5UAC	VO1CAT		MIR	
167	P	07/14/97	09:55	KB5UAC	VO1CAT		Repairs etc	
166	P	07/14/97	08:33	R0MIR	DG2TOM		Wishes	
165	P	07/14/97	06:57	MIR	IK6ZDF			CIAO !!!
164	P	07/14/97	06:24	N6CO	LW7EDS			hello from lw7eds
163	P	07/14/97	06:23	R0MIR	LW7EDS		question 4 crew	
162	P	07/14/97	05:20	R0MIR	F5ASD			HELLO MIKE!
161	P	07/14/97	04:51	N6CO	LW7EDS			Hi from Mar del Plata
160	P	07/13/97	23:32	NASA5	N6CO			WINPACK
159	PR	07/13/97	23:31	ALL	N6CO			2 Line MIR Keps 7-13

```
10062 Bytes free
Next message Number 169
CMD(B/H/J/K/KM/L/M/R/S/SR/V/?)>
b
cmd:*** DISCONNECTED
```

From The Top.....

The first line is an unproto CQ frame from MIR PMS. Remember it is a single connect system. It is not a BBS. If someone else is connected it is no use calling until MIR PMS disconnects and is listening. To do so only slows the system down and delays the time when you or others will be able to connect. Wait until you see a <DM> frame or CQ call as above.

The next line is my call for a connect to r0mir-1. The next three lines are the response from MIR PMS. From the prompt line I have picked j as the next command. This requests a list of stations recently connected to MIR PMS. The response from MIR PMS is the list of such stations. I have then sent an l command to obtain a list of messages on the PMS. This is followed by the response showing the list of 10 most recent messages and again, the prompt line. There were no messages I wanted to read so I then sent the command b to disconnect. Note that the commands are not case sensitive. As with any PMS you can obtain a complete set of command instructions by sending ? or h.

The entire process only took a minute or two and that left it possible for someone else to make a connect during that pass. It is very important that you disconnect before MIR goes out over your horizon. If you remain connected after you lose the signal you will not be able to disconnect and others along MIR's route will have to wait until the system times out before they can make contact. Note also that the MIR PMS is designed as a service to the MIR crew. It is not good practice to leave messages for other amateurs. The device has limited memory and messages to crew members may be "pushed off the end" if the PMS is over-used by third party traffic.

New Service Gives Regular Satellite Status Reports

Over the years that I've been writing this column I have tried to keep readers informed of the status of the OSCARs by including a six monthly update in the column each January and July. Things are apt to change rather quickly in the amateur radio satellite field and copy deadlines make it inevitable that occasionally some information is out-of-date before it is printed.

In recent months a new service has appeared that has the potential to solve this problem. A weekly update list is being distributed via the packet radio network by KT0H and via the internet by *ve7vdx@dowco.com* and is also available at the following locations:

Web.....*http://www.umecut.maine.edu/~baack/freqguide.html*

Newsgroups...*rec.radio.amateur.space*
....*aus.radio.amateur.misc*
....*uk.radio.amateur*

Mail List....*amsat-bb@amsat.org*

Comments, congratulations, errors or omissions to *ve7vdx@dowco.com*

The current list is too long to reproduce here but I strongly urge satellite enthusiasts to look at it every now and then. Quite a lot of work goes into collecting and collating the information needed each week to update the file....great job, guys. A weekly update means a high degree of reliability. The list is exhaustive and contains many items of news interest as well as the current status. It should be much appreciated by all operators. Information for inclusion in the list may be forwarded directly to VE7VDX at the above internet address.

RS-10 Problems

Leonid Labutin UA3CR has reported that, after a conversation with the controller of RS-10, he does not hold much hope of recovery of this satellite. The estimate was only about 1-2% possibility. They were awaiting the return from vacation of one of the experts to properly assess the situation.

*RMB 1627, Milawa VIC 3678
E-mail: vk3jt@amsat.org

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Are you reading someone else's *Amateur Radio*?
Call
03 9528 5962
to find out how to get it every month!

Awards

*John Kelleher VK3DP - Federal Awards Manager**

DXCC

Over the past months I have dealt with a variety of correspondence, mainly to do with DXCC and the listings arising. Some confusion with additional countries, and deletions to DXCC, still remain. To this end, I have decided to publish relevant information on this subject.

Additions

4J1	Malyj Vysotskij Island	May 1989
3D2	Rotuma Island	May 1989
T33	Banaba (Ocean) Island	May 1990
ZS9	Walvis Bay	May 1990
7O	Yemen	Mar 1991
ZS0/1	Penguin Island	Sep 1991
9A/YU2	Croatia	Jan 1993
S5/YU3	Slovenia	Jan 1993
T9/4N4		
4O4/YU4	Bosnia-Herzegovina	Jan 1993
Z3/4N5		
YU5	Macedonia	Jun 1993
OK/OL	Czech Republic	Jun 1993
OM	Slovak Republic	Jun 1993
P5	North Korea	Oct 1995
BV9P	Pratas Island	Apr 1996
BS7	Scarborough Reef	Apr 1996

Moved from Deleted List to Active Status

E3	Eritrea	Feb 1994

Moved to Deleted List

DM/Y2-9	German Dem Republic	Mar 1991
4W	Yemen Arab Rep (North)	Mar 1991
7O	PDR of Yemen (South)	Mar 1991
A1	Abu Ail Island	Jun 1993
OK/OM	Czechoslovakia	Jun 1993
ZS0/1	Penguin Island	Jul 1994
ZS9	Walvis Bay	Jul 1994

To answer one outstanding question, Yugoslavia has NOT been deleted. It remains, represented by YU1, 6, 7, 8, 9 and 0. The breakaway republics of 9A, S5, T9, and Z3 are now separate DXCC countries under their own right.

The question of VS6/VR2 Hong Kong remains status-quo, until the ARRL DXCC Desk decides otherwise.

Air Mail Postage Rates

The world is divided into five Postal Zones. The APO rates in dollars applying to these zones are:

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
P/Cards	0.70	0.80	0.09	0.95	1.00
Econ/air	0.65	0.70	0.75	0.80	0.85
Letters	0.75	0.85	0.95	1.05	1.20
Econ/air	0.70	0.80	0.85	0.90	1.00
Packets	1.90	2.20	2.50	2.70	3.20
Econ/air	1.70	2.00	2.20	2.50	2.70

Economy Air is virtually by air over water, and by land to destination.

Zone 1 Papua New Guinea, New Caledonia, New Zealand, Solomon Islands, and Vanuatu.

Zone 2 Brunei, Fiji, Fr Oceania, Indonesia, Kiribati, Malaysia, Nauru, Niue, Samoa, Singapore, Tokelau, Tonga, Tuvalu, Wallis Is and Cook Islands.

Zone 3 Bangladesh, Bhutan, Cambodia, Caroline/Marshall Is, China, Guam, Hong Kong, India, Japan, Korea, Laos, Macau, Maldives, Marianas, Micronesia, Myanmar, Nepal, Pakistan, Palau, Philippines, Pitcairn, Sri Lanka, Taiwan, Thailand, and Vietnam.

Zone 4 Afghanistan, Bahrain, Canada, Cormoros, Cyprus, Hawaii, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Madagascar, Mauritius, Mexico, Oman, Qatar, Reunion, St Pierre & Miquelon, Saudi Arabia, Syria, United Arab Emirites, USA, Yemen.

Zone 5 Should include all of those countries not listed above. If you have plotted the above lists, you will find that Europe, Africa, South America and the West Indies are missing, along with some Atlantic Islands and outer Asia.

RTTY DXCC

I have had a request to publish the standings for RTTY DXCC. Here is the complete list, including those who are Silent Keys:

Cert No	001	VK2SG	S Molen	07.10.83
	002	VK2EG	W Storer	26.05.84
	003	VK5RY	R Collins	27.02.85
	004	VK2BQS	J Swan	07.05.87
	005	VK3EBP	P Styles	11.05.91
	006	VK3AMK	G Wilson	11.07.97

Grid Square Listing

There has also been a request for the Grid Square listings. This list is not necessarily in order of proficiency but in certificate number order:

	2 m	6 m	10 m	15 m	20 m	40 m	80 m	70 cm	23 cm
VK3BRZ	42	67						19	17
VK3DP					109				
VK3KWA									30
VK2CMV			104	104	104	104			
VK3TU		62							
T30JH		56							
VK4ARB				89	143		100		
VK4SIX		52							
VK3WAB					101				

European World wide Award

During last month I received a letter from Hans Kiesinger L40370 (VK4/HE9RFF) ex HS1ALK, with the rules for the European World Wide Award, which is sponsored by the Council of Europe. The information received by Hans was in French, so Hans translated it.

The European World Wide Award (EWWA) was created by the Radio Club of the Council of Europe, and is available to all licensed Radio Amateurs and SWLs fulfilling the following conditions:

1. HF

A. Mixed (CW-Phone-RTTY): 200 confirmed contacts with 200 different countries on the EWWA/DXCC list.

B. CW: Same as above, but in CW.

C. SSB: Same as above, but in SSB.

D. RTTY: Same as above, but in RTTY.

E. Monoband 200: confirmed contacts with 200 countries on the bands 20, 17, 15, 12 or 10 metres. 100 confirmed contacts on the bands 160, 80, 40 and 30 metres, in modes Mixed, SSB, CW or RTTY.

F. 5 Band EWWA: 100 contacts ON EACH of 80, 40, 20, 15 and 10 m. Mixed, SSB, CW or RTTY.

G. 9 band EWWA: as for 5 band, but in the following: 160, 80, 40, 30, 20, 17, 15, 12 and 10 metres.

H. Top List HF EWWA: Requires a total of 300 confirmed countries, either Mixed, CW, or RTTY. Members of "Top List" receive a personalised pennant in addition to the diploma.

2. VHF

A. 144 or 50 MHz: 50 confirmed countries FM, SSB, CW or Mixed.

B. Satellite: 100 confirmed countries.

Log copies/list (confirmed by two amateurs) stating call, country, mode, frequency or band, date and time, should be sent to: Awards Manager, Francis Kremer F6FQK, 31 Rue Louis Pasteur, F 67490 Dettwiller, France.

The fee is 50 FFrs or $US10.00. Contacts from 1 January 1980 are valid. The worked stations must be land-bound, not /MM or /AM. All stations must be worked from the same country.

The EWWA countries list I received appears to be identical to the current DXCC list, so I see no immediate problems in using the latter.

The RAEM Award

This award was founded in 1972 in memory of the Arctic explorer Ernst T Krenkel, who died in 1971. He was given the privilege of using this special call in honour of his contributions in exploration of Arctic Islands. The award is given for contacting Soviet stations within the Northern and Southern polar circles. The award is issued ONLY for CW contacts.

Earn 68 points as follows: a contact with RAEM when operated by Ernst Krenkel counts as 15 points; Antarctic stations and stations on ships in the Arctic 10 points; stations on Arctic Islands, and stations located north of 70 degrees North are five points. Other stations within the Arctic circle are two points each.

Point values are doubled for South American, African, and Oceanian stations. All QSOs (except those with RAEM while alive) must have been made since 24 December 1972.

General Award Requirements

GCR list is acceptable. Fee is one Rouble (roughly translated to about $AUS2.20). SWL OK. Minimum reports 337 or 33. Allow six months for processing. Apply to: The Central Radio Club USSR, PO Box 88, Moscow, Russia. (Correspondence received as late as 1996 indicates that awards are still being processed and issued from the above address.)

November

I have set aside information for the November issue for the exclusive use of YLs and XYLs, so PLEASE ladies, send me award information which I can print for your advantage.

**4 Brook Crescent, Box Hill South, VIC 3128*
Phone (03) 9889 8393

ar

WIA News

Records Fall on UK LF Band

Since getting access to 73 kHz recently, UK amateurs have not wasted time in establishing, and then breaking, a series of distance records.

The distance for conventional (aural) reception of CW signals on the 73 kHz band stood at 99.9 km until late July, when G4JNT and G2AJV made contact over a distance of 173 km.

However, earlier, on 12 July the signal of G4JNT near Southampton was heard by G3PLX at Kendal in Cumbria, a distance of 393 km. Very slow CW transmission, generated by software, was used with digital signal processing to receive the signal in a bandwidth of 25 millihertz (you read that correctly – that's 0.025 Hz!), the Radio Society of Great Britain's *GB2RS News* reported.

The signal was displayed on a grey-scale "waterfall" display on a PC. The CW used a dot period of 100 seconds, G4JNT's call sign taking 1.7 hours to send. Each dot period also included one full call sign sent at 10 wpm to keep within the UK licensing requirements and to assist any local listeners.

On 27 July, when the 99.9 km record fell, G3LDO, having built a 1.2 m diameter multi-turn receiving loop, heard G4JNT on sched on its first test – a distance of 59 km. On switching his receiver bandwidth from 250 Hz to 500 Hz, G3LDO heard G2AJV as well. This established two firsts: the first random (ie non-sched) reception of another amateur on 73 kHz and the first time that two stations were heard simultaneously. Well, that's the way it goes – no sooner does a band open for use than there are dog-piles to cope with!

Business Journal Highlights Ham Radio Magic

The US business magazine, *Forbes,* carried a complimentary article on amateur radio in its 7 July issue, which was on-sale in Australia on 11 July. Written by staff journalist and long-time radio amateur, James Clash WA3JID, the article, titled "There's magic in it", highlights the world-wide growth in radio amateurs' numbers, pointing out that when the Internet started to become popular, *". . . ham ranks have jumped an average 6% annually."*

The two-page article is illustrated with pictures of the author as a young enthusiast, ex-US senator Barry Goldwater K7UGA, country singer Patty Loveless KD4WUJ and astronaut Blain Hammond KC5HBS, and a variety of QSL cards from around the world.

Clash writes about the magic of getting on the air and how the Internet has become a help-mate to amateurs around the world, helping the hobby to thrive. He quotes ARRL executive vice president David Sumner K1ZZ, in explaining the magic of ham radio: *"There's nothing to connect you – no telephone wires, no computer modems – just air, yet you're linked with someone on the other side of the world."*

Asked why not use Internet e-mail to reach someone in Siberia, for example, Sumner explained to Clash: *"People who think like that just don't get it. They've never run a marathon, climbed a mountain or sailed a 14-foot boat across the Atlantic. They don't see the attraction of challenging themselves."*

[Released 12/7/97].

Contests

*Peter Nesbit VK3APN - Federal Contest Coordinator**

Contest Calendar September – November 1997

Sep 6/7	IARU Region 1 Field Day	
Sep 6/7	All Asia DX Contest Phone	(May 97)
Sep 6/7	Bulgarian DX Contest	(Aug 97)
Sep 7	Panama SSB Contest	(Aug 97)
Sep 13/14	Worked All Europe Phone	(Jul 97)
Sep 20	Atlantic QSO Party Phone	
Sep 20/21	SAC DX CW	(Aug 97)
Sep 20/21	Atlantic QSO Party Phone	
Sep 27/28	SAC DX Phone	(Aug 97)
Sep 27/28	CQ WW RTTY DX Contest	(Aug 97)
Oct 4/5	VK/ZL/Oceania DX Contest (Phone)	(Aug 97)
Oct 5	RSGB 21/28 MHz Contest (Phone)	
Oct 11/12	VK/ZL/Oceania DX Contest (CW)	(Aug 97)
Oct 18	Asia-Pacific CW Sprint	(Jan 97)
Oct 18/19	JARTS WW RTTY Contest	
Oct 18/19	Worked All Germany Contest (Mixed)	
Oct 19	RSGB 21/28 MHz Contest (CW)	
Oct 25/26	CQ-WW DX Contest (Phone)	
Nov 1/7	HA QRP Contest	
Nov 8/9	WAE RTTY DX Contest	(Jul 97)
Nov 8/9	OK-DX CW Contest	
Nov 15/16	IARU Region 1 160 m Contest	
Nov 15/16	All Austria CW Contest	
Nov 22/23	CQ World-Wide DX CW Contest	

It's amazing how normally quiet bands come to life whenever there is a contest on, and one wishes it was more like this all the time.

The ability of contests to prove that the bands are open more than we realise was demonstrated to me during the IARU Contest a few weeks ago, in July. For various reasons I did not take part, so there I was late on Sunday morning, pottering around the shack with the receiver sitting on 7005 kHz and the gain turned down. A weak CW station was calling CQ, but assuming it was semi-local, I didn't pay it much attention. That is, until I heard Ade OH7... A mad scramble to fire up the transmitter followed and, wonder of wonders, a QSO ensued. The time was 11.55 am!

After doing a few somersaults, I rushed out and dragged the XYL into the shack to show her the signal. Although she didn't have a clue what any of it meant, she could see how excited I was, and for once said all the right things, bless her soul.

This got me thinking. My station is nothing special, and my suburban QTH is far from ideal. How much more could be achieved with a better station and quieter location? In fact, there are already plenty of amateurs with such stations, so what do they work at unusual times, when the rest of us are not usually listening? I really am interested in this, so if you've had QSOs at seemingly impossible times, or worked a station on an incredibly long path, please let me know. If the response is sufficient, I'll endeavour to summarise the results in an article. I know this is a bit off the contest track, but it's still of interest, so what the heck!

Getting back to contests, Phil VK1PJ has advised that he will no longer be handling the John Moyle Field Day Contest. On behalf of all the entrants in this contest over the years, many thanks Phil, and we hope you enjoy your retirement.

I am pleased to welcome the new manager for this contest, Eric Fittock VK4NEF. Eric has been keenly interested in this contest for some time, and has kindly volunteered to take it over. I'm sure you will all join me in wishing Eric all the best in managing this popular event.

We had hoped to float some ideas regarding the Field Day for your consideration, however time (and space) have run away, so it will have to wait until next month. In the meantime, have a think about what YOU would like to see happening with the Field Day Contest.

For information and assistance this month, thanks to VK1PJ, VK4FW, 9A2EU, 9V1YC, DL2DN, LZ1BJ, VE2ZP, RSGB, and *CQ*.

Until next month, good contesting!

73, Peter VK3APN

Amendment to Rules of Bulgarian DX Contest

The latest rules for this contest have just been received. Please note that it now runs from 1200z on Saturday, 6 September, to 1200z on Sunday, 7 September. Logs should be addressed to BFRA, not Central Radio Club. All other details remain the same, as shown in last month's column in *Amateur Radio*.

First Atlantic QSO Party (Phone)

Sat, 20 September, 0000 – 2359z

Run by the Loyalist City ARC in NB Canada, the object is to work as many Atlantic province stations in Canada as possible. These include those in New Brunswick, Newfoundland, Nova Scotia, and Prince Edward Island.

Categories are low and high power (up to and over 100 W respectively). Use phone only, 160-10 m. Send RS + country (VK); Atlantic province stations will send RS + county. Score one point per QSO, and multiply by the number of counties worked. Send logs to: Atlantic QSO Party, Loyalist City ARC, Box 6552 Stn B, Saint John, NB E2L 4R9, Canada postmarked within four weeks.

RSGB 21/28 MHz DX Contest

Phone: Sun, 5 October, 0700 – 1900z
CW: Sun, 19 October, 0700 – 1900z

The object is to work as many UK stations as possible on 21 and 28 MHz (UK includes GI, but **not** EI). Categories (single or multi-operator) are: open, restricted, QRP, and SWL. In the restricted section, only one antenna is allowed, which must be a single element no more than 15 m high, and 100 W max O/P. The open section has no antenna or power limitations.

Send RS(T) plus serial starting at 001; UK stations will add their county code. Score three points per QSO. The final score equals the total points times the total multiplier (counties worked on each band added together). Use a separate log for each band. Send logs and summary sheets, postmarked by 14 November, to: RSGB HF Contests Committee c/o G3UFY, 77 Bensham Manor Road, Thornton Heath, Surrey CR7 7AF, England. A comprehensive range of awards is offered.

SWLs may only log UK stations making contest QSOs with overseas stations. SWL logs should be headed time UTC; callsign

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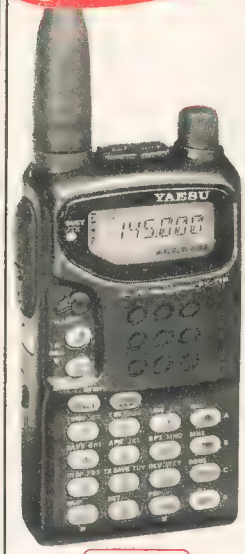


FT-11R Micro Deluxe 2m Hand Held

One of the world's smallest 2m FM hand helds with a full-size keypad, the Yaesu FT-11R has been reduced in size but not in features. Designed to fit comfortably in your hand, it weighs just 280g.

- Large backlit LCD with full frequency readout
- 150 memories (75 in alphanumeric readout)
- Easy SET mode for customising functions
- Thumb-controlled volume and squelch
- Auto battery save, TX saver and power off
- Efficient FET RF amp with 1.5W RF output as standard, 5W with optional battery or DC adaptor
- DTMF-based selective calling and paging
- Extended 110-180MHz receiver coverage
- Naming of memory channels
- DTMF message paging with up to 6 alpha-numeric characters
- Australian version auto repeater shift
- 57 x 102 x 26mm (W.H.D.)
- With FNB-31 600mA/H NiCad pack, belt clip, AC charger, CA-9 charge adaptor and antenna

D 3640 **$399**

2 YEAR WARRANTY

FT-840 Economical HF Mobile Transceiver

A serious HF transceiver that won't break the bank and doesn't compromise performance at home like many current micro-rigs. The Yaesu FT-840 gives you full 160m to 10m amateur band coverage with 100W PEP output on SSB/CW/AM, continuous receiver coverage (100kHz-30MHz), 100 memory channels, a large backlit LCD screen, an effective noise blanker and an uncluttered front panel. The FT-840 is simple to use, with useful features like an SSB speech processor for added audio punch, IF shift to fight interference, and Direct Digital Synthesis oscilliators for cleaner transmit and improved receiver performance. Includes DC power lead and hand microphone...just connect your power supply and antenna and start having fun.

D 3275 **$1395**

2 YEAR WARRANTY

YAESU FT-736R VHF/UHF Base Station Transceiver

Whether your interest is in talking through your local repeater, operating SSB DX or talking to the world via satellite, this high-performance multimode base station transceiver can do it all! In its standard form, the FT-736R provides 25W output on the 2m (144-148MHz) and 70cm (430-450MHz) bands in SSB, CW and FM modes. Can be expanded to cover the 6m (50-54MHz) and 23cm (1240-1300MHz) bands by installing optional modules.

- Digital control with keypad VFO frequency entry
- Efficient switch mode AC power supply
- 100 general purpose memories
- 10 full-duplex memories, 2 independent VFOs per band
- 2 full-duplex VFOs: transmit and receive fequencies can be tuned independently or synchronously for satellite operation
- Adjustable IF notch and IF shift filters
- Noise blanker and 3-speed selectable AGC
- High stability (+/- 1ppm) PLL reference oscillators
- Speech processor and VOX for SSB
- VFO or selectable channel steps on FM
- Digital input connection for packet TNCs

D 2920 **$2695**

2 YEAR WARRANTY

6m module	D 2921	$499
23cm module	D 2922	$899

Specifications

Modes:	LSB/USB (J3E), CW (A1A), FM (F2D, F3E)
Receiver:	50, 144MHz - dual conversion; other bands triple conversion
Sensitivity:	SSB/CW - better than 0.2uV for 12dB S+N/N; FM - better than 0.35uV for 12dB SINAD
Size:	368 x 129 x 286mm (W.H.D.)

Offers expire 30/9/97

Our Antenna Deals Are Making Waves

2m/70cm Mobile Antenna

An easy way to go mobile, the new fibreglass M270 antenna with standard 5/16" thread can be used with exisiting base/lead assemblies you may already have in place on a vehicle. Constructed on a strong fibreglass rod and covered with long-life polyolefin heatshrink, this 975mm long antenna covers 144 to 148MHz and 430 to 440MHz, with a maximum power rating of 200W.

D 4808

MOBILE ONE

$34.95

2m/70cm Dualband Handheld Antenna

This flexible antenna covers the 2m and 70cm amateur bands, providing better performance than the standard ones supplied with latest version dualband transceivers such as the Yaesu FT-50R. The antenna consists of a thin, flexible metal whip section which is joined to an SMA-type male connector, providing 1/4 wave performance on the 2m (144 to 148MHz) band and 5/8 wave performance on the 70cm (430 to 450MHz) band. Made in Japan.

D 4338

$39.95

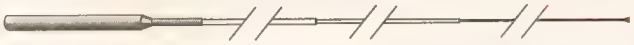
6m 1/2 Wave Base Antenna

A rugged, Australian-made vertical antenna designed to cover the 51 to 54MHz range, with minimum SWR around 53MHz. Built using high tensile T81 grade aluminium, it's just 2.9m long with a sealed base section and 100W minimum power rating. Complete with mounting hardware.

D 4825

D & G Antennas

$69.95



Advanced Data Mangement Software

An advanced way to programme a variety of the functions on many of the latest Yaesu handheld and mobile transceivers. Each package consists of an interface that plugs into both the serial port of your PC and connects to the transceiver via its microphone socket (for handhelds) or its packet socket (for mobiles) Also provided is easy-to-use 3.5" format PC software with pull down menus that allow for programming and naming of memory channels, selection of output power, CTCSS tones, scan and battery saver operation, plus much more.

ADMS-1C for FT-10R/11/50 and 51R
D 3752 **$85**

ADMS-2C for FT-3000M/8000R and 8500
D 3758 **$85**

direct link

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or Fax: (02) 9395 1155 or visit us on the Internet at www.dse.com.au

High Performance 2m F-23A Base Antenna

The Diamond F-23A is a stacked, collinear style base antenna, providing high gain, wide bandwidth and low radiation angle for extended range. The fibreglass reinforced polyester outer radome and gasket seals provide excellent all weather operation, and it comes supplied with compact ground-plane radials for a clean pattern. Stainless steel mounting hardware ensures a long, trouble-free life and it is supplied with instructions for easy set-up.

Specifications

Frequency:	144 to 148MHz
Gain:	7.8dB
Max power:	200W
Length:	4.53m
Max wind:	40m/s
Type:	3 x 5/8λ
Connector:	SO239 socket

D 4850

SAVE $40

$195

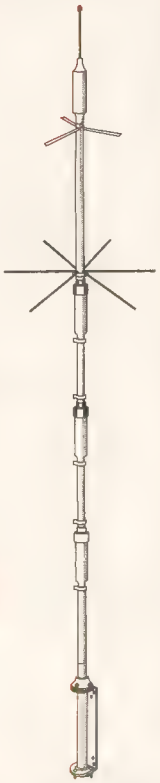
Rugged HF 5-Band Trap Vertical Antenna

The rugged 5BTV incorporates Hustler's exclusive trap design (25mm solid fibreglass formers, high tolerance trap covers and low loss windings) for accurate trap resonance with 1kW PEP power handling. Wide band coverage is provided on the 10, 15, 20 and 40m bands (SWR typically 1.15:1 at resonance, <2:1 SWR at band edges) with 80kHz bandwidth typical on 80m at less than 2:1 SWR. An optional 30m resonator kit can be installed without affecting operation of other bands. High strength aluminium and 4mm (wall thickness) extra heavy-duty base section guarantee optimum mechanical stability. At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are reccommended), or it can be mounted in an elevated position with a radial system. Unlike other antenna designs, the 5BTV can be fed with any length of 50-ohm coax cable.

D 4920

HUSTLER

$349



B 3049

30m Resonator Kit

Adds 30m coverage to the 5BTV, and includes all hardware.

D 4921 **$89.95**

DICK SMITH ELECTRONICS

heard; number sent by that station; callsign of station being worked; new multipliers; points. In the column headed "station being worked" the same callsign may only appear once in every three QSOs except when the logged station counts as a new multiplier.

Asia-Pacific Sprint (revised rules)

According to the new rules, the June date has been changed from CW to SSB. This will affect the contest scheduled for 13 June 1998.

Suggested frequencies are 7015-7040 and 14030-14050 kHz for CW, and 7060-7080 and 14250-14280 for SSB. On SSB, the called station must QSY at least 6 kHz after a QSO.

Winners must now make at least five valid QSOs to be eligible for a prize. Results will be posted to: *CQ-CONTEST@contesting.com* and *AP-SPRINT@dumpty.nal.go.jp*

All other rules, published last January, remain the same.

JARTS World Wide RTTY Contest

18/19 October, 0000z Sat – 2359z Sun

This RTTY contest runs on the third full weekend in October each year. Categories are Single Operator Multi-band, Multi-operator, and SWL. Bands are 80-15 m. Exchange RST + age; YLs send RST + 00. Score two points per QSO with own continent, and three points per QSO for other continents. The multiplier is the total number of DXCC countries and W/VE/JA/VK call areas worked on each band, with all bands added together. Send your log to arrive by 31 December to: AJARTS Contest Manager, Hiroshi Aihara JH1BIH, 1-29 Honcho 4, Shiki, Saitama 353, Japan.

Worked All Germany DX Contest (CW and Open)

18/19 October, 1500z Sat – 1500z Sun

In this contest, which occurs on the third full weekend every year, the world works Germany. Categories are: Single operator all band (CW, mixed, and mixed QRP max 5 W output); Multi-operator single TX; SWL. Use 80 – 10 m, and exchange RS(T) plus serial number. German stations will add their DOK (location code). Each station may be worked once per band per mode.

Score three points per QSO, and determine the final score by multiplying by the total number of German districts (first letter of DOK) worked on each band regardless of mode. Send logs, summary and dupe sheets to arrive by 20 November to: Klaus Voigt DL1DTL, PO Box 720427, D-01023 Dresden, Germany. Logs on DOS disk are welcome, if accompanied by a signed summary sheet.

CQ WW DX Contest

Phone: 25/26 October, 0000z Sat – 2400z Sun
CW: 22/23 November, 0000z Sat – 2400z Sun

Sponsored by *CQ Magazine*, these contests are undoubtedly the premier HF events of the year, and present the opportunity to work many rare countries and zones even with modest equipment. They are open to all stations world-wide, on 1.8-30 MHz (no WARC bands). Categories are: single operator; single operator low power (max 100 W output); single operator QRPp (max 5 W output); single operator assisted (for those using DX spotting nets); multi-operator single transmitter; and multi-operator multi-transmitter.

Single operator stations can enter as single or all band, and can change bands at will. Multi-operator stations must enter as all band. Multi-operator single Tx stations must stay on a band for at least 10 minutes, EXCEPT that one – and only one – other band may be used during the 10 minute period, if – and only if – the station worked is a new multiplier. Multi Tx stations are exempt from this rule, but can only radiate one signal per band at any one time.

Exchange RS(T) plus CQ zone. Score three points for QSOs with stations in a different continent, and one point for QSOs with stations in the same continent (for VKs this means Oceania as defined for WAC). Stations in the same country or call area can be worked for additional multiplier credit, but have zero points value. The total multiplier is the number of DXCC countries plus zones worked. Final score equals total points times total multiplier.

Use a separate log for each band. Show new multipliers in the log the first time they are worked, and duplicates with zero points. Entrants are encouraged to include a "dupe sheet" for each band, which becomes mandatory for 200 QSOs or more. Computer logs are welcome, and must be in ASCII on DOS disk, using separate files for each band, eg VK7AAA.20 for a 20 m log; alternatively in K1EA "CT" .BIN format, eg VK7AAA.BIN. Label the outside of the disk with the callsign, the files included, mode, and category. Disks MUST be accompanied by a paper printout satisfying logging instructions. The committee may request a disk from high scoring stations to enable the log to be checked by computer, if the log originally submitted was a computer printout.

Include a signed summary sheet, showing power output for low power and QRPp entries, and send the log postmarked by 1 December (phone) or 15 January (CW) to: CQ Magazine, 76 North Broadway, Hicksville, NY 11801, USA. Indicate Phone or CW on the envelope. Numerous awards, trophies and plaques will be awarded to the leading entrants in the various categories and countries.

Results of 1997 Australian Postcode Contest

Congratulations to VK4NSW for achieving first place world-wide. Australian scores are as follows:

VK2LEE	952
VK3CAT	23,128
VK4NSW	584,064
VK4FW	149,340
VK4LMB	8,800
VK4JAE	252
VK6LG	48,256
VK8AV	32,844
VK8NSB	2,618
VK4KIW/M	(check log)

Results of 1996 Bulgarian Contest

(call/band/QSOs/pts/mult/score)
VK4TT 14 77 291 13 3,783

Results of 1996 Canada Winter Contest

(call/QSOs/mult/score)
VK2APK * 68 4 872

Results of 1996 Croatian DX Contest

(call/QSOs/pts/mult/score)

VK2APK	*	409	1611	87	140,157
VK8AV	*	241	924	75	69,300
VK4TT		27	106	8	848

Results of 1997 John Moyle Field Day Contest

Here are the results of the 1997 John Moyle Field Day Contest, a month later than intended. The computer file accidentally got deleted, so the results all had to be keyed in again from scratch. Field Day would be incomplete without a visit from Mr. Murphy!

Many thanks to all those who took part. A magnificent effort saw entries up almost 50% from last year, with 55 logs vs 38 last time. Scores were also well up on last year, with VK3ER taking top honours with 5746 points. Hot on the heels of the VK3ER gang were VK3APC and VK4WIS, with 5230 and 4936 points respectively. Well done everybody!

The top home station score was achieved by ZL2AWH, who receives a certificate for his efforts, and an SWL entry was received from Andrew Robertson in VK1. Well done Andrew, and we look forward to seeing you in the contest with a full call before too long.

Unfortunately, the President's Cup could not be awarded this year, because of the lack of portable CW entries. Although many CW QSOs were made, they were made by stations in the mixed section (ie phone and CW), who are not eligible. It is clear that

more CW activity is needed, to make portable CW-only operation more attractive, and this aspect will be examined further before the next running of the contest.

So without further ado, here are the results. See you all next year!

Results are in the following order: Callsign, Multi/Single, Mode (All, Phone, CW), Band (All, HF, VHF), and Score. Certificate winners are highlighted with an asterisk (*).

Portable, Six Hour

VK4YH	Mult	All	All	862	*
VK2FRE	Mult	All	All	780	*
VK3GH	Mult	All	All	390	*
VK2ENG	Mult	All	All	372	
VK5BAR	Mult	All	All	192	
VK4WIN	Mult	All	HF	516	*
VK3CMZ	Mult	All	HF	106	*
VK2IRP	Mult	All	HF	102	*
VK2BOR	Mult	All	HF	58	
VK3SAA	Mult	All	VHF	2086	*
VK1PK	Sngl	All	HF	106	*
VK5AJS	Sngl	Phone	All	78	*
VK3TLW	Sngl	Phone	VHF	668	*
VK2ANK	Sngl	Phone	VHF	508	*
VK3KTO	Sngl	Phone	VHF	440	*
VK1PK	Sngl	Phone	VHF	120	

Portable, 24 Hour

VK3ER	Mult	All	All	5746	*
VK3APC	Mult	All	All	5230	*
VK4WIS	Mult	All	All	4936	*
VK4WID	Mult	All	All	3922	
VK2FBK	Mult	All	All	1888	
VK6ANC	Mult	All	All	1012	
VK2WG	Mult	All	All	442	
VK7OTC	Mult	All	All	360	
VK2EWC	Mult	All	All	264	
VK4IZ	Mult	All	HF	1416	*
VK1VK	Mult	All	HF	620	*
VK4CHB	Mult	All	HF	490	*
VK5GRC	Mult	All	HF	410	
VK2IBT	Mult	All	HF	188	
VK3BML	Mult	All	HF	178	
VK4WIT	Mult	All	HF	136	
VK6PM	Mult	All	HF	82	
VK5UE	Sngl	All	All	98	*
VK4EV	Sngl	All	HF	182	*
VK5AIM	Sngl	Phone	All	122	*
VK4JAE/3	Sngl	Phone	All	18	
VK5ANB	Sngl	Phone	HF	352	*
VK3TBM	Sngl	Phone	VHF	1732	*
VK4IS	Sngl	Phone	VHF	664	*

Home

ZL2AWH	Sngl	Phone	HF	215	*
VK2APK	Sngl	All	HF	119	
VK3CAT	Sngl	All	All	112	
VK5XE	Sngl	CW	All	70	
VK4MOJ	Sngl	Phone	HF	44	
VK3ALD	Sngl	Phone	HF	41	
VK4JR	Sngl	CW	HF	35	
VK8AV	Sngl	All	All	30	
VK3XB	Sngl	CW	HF	27	
VK4ICU	Sngl	CW	HF	21	
VK2RJ	Sngl	All	HF	16	
VK3KS	Sngl	CW	HF	14	
VK3AMD	Sngl	Phone	All	10	
VK3CY	Check Log				

SWL

Andrew Robertson (VK1)

Sngl	Phone	HF	108	*

Some Comments from Logs

All bar one of the stations contacted on VHF did not know their grid square, which makes for a lot of extra work. I would have operated much longer, but it's hard to stay motivated with no points for repeat contacts...*(VK3CY)* Antenna was just a bit of wire slung over the roof, short, low and random...*(VK3KS)* Thanks for your efforts with the contest. We had a good time and the weather was much better this time...*(VK3ZPF for VK3SAA)* Camped out on a sheep station. Charged the battery from a 40 W solar panel...*(VK4EV)* I use three RACQ maps joined together with circles drawn on, and am constantly amazed how stations manage to keep off the lines! *(VK4IS)* The weather was perfect, and the location choice. VK1s and 6s were hard to find, but the DX stations were more than willing to give a number...*(VK4GZ for VK4WIS)* Something for everyone, and a good social occasion...*(VK4ZZ for VK4WIT)* Good contest, after El Presidente VK4PGF learnt how to connect the antenna BEFORE checking the SWR...*(VK4WJT for VK4YH)* Good conditions, and I got two more contacts than last year at 1/10th the power...*(VK5ANB)* Pleasant weather, but poor conditions except on 15 m. A good time was had by all...*(VK6NU for VK6ANC)* The VHF and UHF logs should be acceptable, but when you see the HF logs you will either break into maniacal laughter or weep silently. Next time we will ensure ALL operators are trained how to fill out log sheets...*(VK7KSC for VK7OTC)* Thanks for a very enjoyable contest...*(ZL2AWH)*

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WIA News

Wireless Data Link Equipment Uses 433.92 MHz

A British company has developed a 'wireless' transceiver for short-range computer serial data communications operating on 433.92 MHz for use where cabling is difficult or impossible.

Developed by Low Power Radio Solutions (LPRS), the equipment is made in different versions, using different frequencies, to suit the domestic UK and European markets.

Models destined for the European market operate on either 418 MHz or 433.92 MHz, which are European industrial-scientific-medical (ISM) bands not requiring equipment licensing, while the UK product operates on 458 MHz, a UK ISM band.

The European units have an output power of 0.25 mW, while the UK units have a much higher output of 10 mW. RS232 data at the standard 9-pin D-type transceiver input socket is transmitted in packets with a header and checksum. The receiver verifies the checksum and removes the header. Narrow-band modulation is used and the maximum data rate is 1200 baud, said LPRS, but this means they are less prone to noise than higher speed, wide-band units.

The line-of-sight range of the transceivers is about 120 metres, which falls to 30-50 m inside buildings, according to LPRS. Suggested applications include data communications from sensors, such as temperature and pressure, or data from swipe card readers.

The Australian Communications Authority has recently Class-licensed the 433.05-434.79 MHz band in Australia for such applications (see *Amateur Radio*, August 1997, p 3), upgrading the original 1993 Class licence. The LPRS wireless data link units are not presently available in Australia, but represent the sort of equipment for which the "low interference potential devices" (LIPD) Class licence was created.

[Released 11/8/97]

New Presidents in NZ and UK

The New Zealand Society of Amateur Radio Transmitters (NZART) and the Radio Society of Great Britain (RSGB) have each announced their results of elections for the position of president.

In New Zealand, Alan Wallace ZL1AMW, is the new president, replacing Jim Meachen ZL2BHF, who served the organisation for the past five years. Alan Wallace comes from the city of Hamilton and has been on the NZART Council for ten years.

The RSGB has re-elected Ian Kyle GI8AYZ. The *GB2RS News* said that this is the first time in several decades that an incumbent president has been elected for a second consecutive term.

[Released 11/8/97]

Divisional Notes

Forward Bias – VK1 Notes

Hugh Blemings VK1YYZ

This month we welcome Sakari Matilla VK2XIN/OH2AZG into the role of webmaster for the Division. Sakari has authored a number of excellent web pages and will be bringing these skills to bear on the Division's site ensuring that it is both an informative and entertaining place to visit. If you have contributions or suggestions, please e-mail them to Sakari at *website@vk1.wia.ampr.org*

Simon VK1AUS has been doing much behind-the-scenes work in revamping WICEN in the ACT and, as part of this process, recently attended the WICEN NSW AGM in Sydney. In addition to briefing this meeting on the activities of the Division, Simon also presented some useful background information from his work with RAYNET in the UK. During the Division's committee meeting this evening he presented a report on the AGM and made note of the warm reception this renewed activity in the ACT has received.

WICEN ACT is responsible for the ACT/Monaro region which extends right down to the Victorian border, Simon being assisted in his role as State Co-ordinating Officer by the Deputy State Co-ordinating Officer, Phil Longworth VK1ZPL.

As well as fulfilling an important role in providing emergency communications, WICEN represents an enjoyable and challenging facet of the hobby and all are encouraged to participate in upcoming training sessions and exercises. Simon would welcome your enquiry on air or by phone on 0419 439 925.

This month marks the half way point in the present committee's "term of office"; whilst it is understood a number of office bearers will be continuing in their present positions, some will not. Why not give some thought to being on the new committee? I'd particularly encourage newer members to consider nomination as fresh ideas are always welcome.

All going to plan, September's meeting will discuss lightning and how to protect against it, an important topic for all amateur operators. There'll be tea and coffee too. Why not come along ?

VK2 Notes

David Thompson VK2NH

Judging by all the good local signals heard on the Remembrance Day contest weekend, there were a lot of New South Welsh-persons on air. Here's hoping for a good tally for VK2 when the scores are all added up.

It was terrific to see and hear a lot of friends from all over Australia and New Zealand up and piercing the ether with their radio waves at a time of remembrance of those who gave their lives for our freedom.

Things have been moving along very well with the New South Division, including plans for the refurbishment of our transmitting site at Dural. Already we have decided to have a working bee before the end of this year.

On Sunday, 27 July, we held a Trash and Treasure day at Dural after the broadcast. There were many bargains to be had and some of those who attended the day walked away with a new treasure for their shack. Although the day began fairly cold and overcast, the rain cleared along with the clouds and the sun appeared to provide a very pleasant setting for the day.

We had some visitors from one of our affiliated clubs! The Goulburn Amateur Radio Society came up to have a look at Dural and fire up the Dural barbecue. Thanks to President Geoff for organising the new plate, which was well used by the time the visitors had lunch. Mind you, we reckon there is enough RF floating around at Dural, that the food cooks itself by just being there! Thank you to the Goulburn people who came all that way. We enjoyed having you visit.

It has been a rather quiet August, with not too many controversies, thank goodness. The one big event that has occurred and has been of interest is the name change of the Spectrum Management Agency (SMA) to the Australian Communications Authority (ACA). In reading a newspaper report, I was interested to see a piece about the changed prefixes for telephones referred to as having come from the Australian Communications Authority, formerly known as Austel. Well at least the scribe was half right.

The NSW Division has been doing rather well lately in the membership stakes. Welcome those new members who you will see mentioned in *Amateur Radio*. There were nine full and three associate memberships approved at our August Council meeting. That takes the membership tally to 89 since the end of January 1997. In the words of Secretary Eric VK2EFY, *"We trust that these new members will have a long and happy association with the VK2 Division"*. The new members go into the monthly draw for the Fluke Multimeter.

It is worth a thought about the bravery of all who assisted in some way during the Thredbo emergency, giving their energy and dedication. Although the Wireless Institute Civil Emergency Network (WICEN) was not activated to provide emergency communications, there were several people, who apart from being members of WICEN, are also in the SES and Cave Rescue and are members of other groups of helpers, who assisted in some way.

The Jamboree of the Air is on again this year on the weekend of 18 and 19 October 1997. I hope you can see your way clear to help your fellow amateurs or your local scout group set up and operate a station for at least some of the weekend, giving people the chance to make some contacts with other groups of like mind, on the other side of town and, if propagation permits, on the other side of the world.

Affiliated Clubs Net

The NSW Division runs an Affiliated Clubs Net on selected Sunday mornings with VK2 Councillor and Affiliated Clubs Officer Ken Westerman VK2AGW in the chair. This is the perfect opportunity for affiliated clubs and interested persons from all over the state to get together and discuss issues of concern and meet each other on air.

The net can be heard on 3.595 kHz at 0900 hrs on the first and third Sundays of the month. Ken gets lonely if you're not there.

Just a reminder that the next Conference of Affiliated Clubs will take place on Saturday, 15 November 1997, starting at 0900 local. Registrations are being called for now. The venue is, of course, Amateur Radio House at Parramatta.

As I mentioned in the last issue of *Amateur Radio*, August is just that time for a gust or two of wind. I'm sure that is why they named it August, here in the Mountains anyway. As I write this column, I just took a break to wind down my tower due to strong winds. It is hard to sleep at night with the wind racing through the bush and buffeting all in its way. That's when my (understanding) wife says to me *"If I grew antennas out of my head, would you like me more?"* The answer is, *"Dear, I love you just the way you are and the antennas just where they are!"*

A quick reminder that the VK2 Division has made available a post box for amateurs to use as their postal address for amateur radio related mail. This move was made after it was learned the ACA was to publish on the Internet full details of licensed amateurs, suppressed or otherwise. If you are interested, please contact the Divisional office.

Before I leave you this month there is the matter of a change of Divisional e-mail address. If you are addressing e-mail to the

office, please do so at *vk2wi@ozemail.com.au.*

If you would like to contact the VK2 Division regarding your hobby, please do not hesitate to contact the office or any of the Councillors. We will be only too pleased to hear from you. If you would like to get in touch with an individual Councillor, just contact our Divisional office and it will be arranged. Our free-call phone number is 1 800 817 644 and our address can be found on the WIA Divisions' page.

Next month we'll have more to report, but if you have anything you would like us to include as VK2 news, send it to me at PO Box 82, Springwood 2777 or by e-mail to *dthom@penrithcity.nsw.gov.au*

VK3 Notes

Jim Linton VK3PC

Spring Has Arrived

What a cold miserable *el nino* winter we've just had. But that's behind us as we enter the more pleasant months of spring, and traditionally, just like coming out of hibernation, many of us become more active and alert.

A few of us will be looking around for new things to try, or complete, in relation to our hobby, or just getting on air more often. Some, I know, have set a personal goal of upgrading their licence, including those already enrolled in next month's WIA Victoria Turbo Tutorial.

To be enrolled in this intensive AOCP theory two day weekend course being held on 18-19 October, you must already have a Novice licence, and a keen desire to upgrade. An actual AOCP theory examination will be conducted at the end of the course on the Sunday. For more information, contact the WIA Victoria office.

Another activity on the same weekend will be JOTA. Whether you have or haven't taken part in this event previously, now is the time to give it some thought. Sadly, this once premier activity has waned in recent years due to a number of factors. These include poor HF band conditions, and changed attitudes to JOTA by both the amateur radio fraternity and the scout/guide associations. The perception is that the scouting movement, which has undergone organisational structure changes, no longer embraces JOTA in many districts. Where JOTA does survive it is doing so mostly because the Internet is now a formal activity.

As ready access to the Internet spreads through our schools, homes and society generally, I suspect the information superhighway won't be the panacea to keep JOTA into the new millennium. Our hobby has much more to offer. It is my hope that the slump experienced by amateur radio and JOTA are only cyclic, and that we're headed for better times.

If you're looking for some way of helping your hobby, or putting something back into what has given you enjoyment and sense of achievement, then think seriously about what you can personally do to help rekindle JOTA.

Internet Homepage

The WIA Victoria homepage on the Internet is slowly but surely taking shape. It is primarily targeted at creating an interest in our hobby among computer users. Specially written material is being put on the homepage to raise an awareness of amateur radio, and provide background information on what radio amateurs do, both in a contemporary and historical context.

Although a lot of further development is needed, the WIA Victoria office has already received a positive response from Internet users. The web site gives information about the membership services provided by WIA Victoria and it has been successful in recruiting new members.

I would welcome any short written contributions on the various aspects of our hobby – foxhunting, DXing, packet/digital, contesting, home-brewing – to give Internet browsers a taste of our hobby. It already contains information on the history of QSL cards and the requirements of our QSL Bureaux, the amateur licence system, and an item on QRP technique.

The WIA Victoria homepage address is *www.tbsa.au/~wiavic/*

News and Information

WIA Victoria will be using its web site regularly to distribute its news and information. We are also investigating a direct electronic mailing service of news to those members who have e-mail facilities. A register is being compiled of members with e-mail addresses who would like have news directly sent to them. Inclusion on the e-mail register is to be a new free membership service.

Articles of Association

The revised Memorandum and Articles of Association have been printed. A copy was sent to those members who provided input to the review process either by correspondence or attendance at the Special Meeting to approve them.

All new members now automatically receive a copy of the booklet format document. Any member can obtain a copy by calling at the WIA Victoria office. If you require a copy by post you must supply a self addressed and stamped envelope with 85c in postage affixed. The envelope needs to be at least half A4 in size.

The printing has been a costly process and copies will only be available until 1 October 1997, at no cost. After this time a small charge will be made to recoup some of the expense involved.

VK5 Notes

Ian Hunt VK5QX

Most of the following is taken from the President's Notes portion of a Sunday morning broadcast by VK5WI. In view of the important nature of the material, I decided also to provide it through *Amateur Radio* magazine.

The Burley Griffin Building

I now wish to address you regarding our occupancy of the Burley Griffin Building as our Divisional Headquarters. In line with your Divisional Council's policy of keeping the membership as fully informed as possible, the current situation was explained in some detail to those present at the recent General Meeting.

I will attempt here to provide an explanation as to what is occurring. A number of possibilities may arise and need to be considered in the near future.

You may be aware that the building was initially an incinerator used for destruction of waste materials within the Thebarton Corporation district, however it had been unused for many years. Unlikely though it may seem in the case of an incinerator, this building is of heritage value having been designed by Walter Burley Griffin who is more famous for having had much to do with the design of our National Capital, Canberra.

Walter Burley Griffin had formed a company known as the Reverberatory Incinerator Company which built a number of these edifices around Australia. To the best of my knowledge there are only three still in existence, one being in another Adelaide suburb and possibly one somewhere in Queensland.

In writing contracts to build these units, Burley Griffin always insisted on inclusion of a clause which gave him the right to design the external appearance of the building according to his personal wishes. This led to the completion of buildings with attractive additions to the exterior such as artificial and decorative columns on the tops of chimneys and elaborate "frieze" type decorations around openings and on outside walls.

The National Trust had seen fit to place their plaque on such buildings so as to preserve them for posterity. Thus the Thebarton Corporation were unable to demolish the building and were at a loss as to

what could be done with it. (Incidentally, the State Department of Environment and Conservation are now responsible for implementing any actions needed to ensure preservation of such property. The National Trust still maintains an interest in such action.)

The late Rob Wilson VK5WA who, incidentally, was an Honorary Life Member of the Institute, saw a potential for the building and, with others of the then VK5 Council, was able to negotiate permission for the Division to carry out work to make the building habitable. With a lot of hard work, this was eventually achieved and the Division has occupied the building for some time originally on a lease and later on a permit type of occupancy.

Relatively recent cost rationalisation by officer(s) of the Thebarton Corporation led to some negotiations with regard to rental of the building. It seemed that those concerned were intent on obtaining a very high rental return for occupancy of the building.

The previous (Divisional) Council had attempted negotiation on this matter but negotiations appear to have stalled for various reasons. In the meantime an amalgamation of two Councils took place and the area now comes under the control of, and is owned by, the City of West Torrens Thebarton.

Following on from an interim arrangement, the current Divisional Council took steps to ensure that a rental fee was paid that provided occupancy up until the end of December 1997.

We have now been informed by letter by an officer of the "new" Council that a review of rates of use and tenancy arrangements for Council owned buildings is to be conducted. The letter includes the wording, *"and so on in this period to earmark some properties for disposal"*. It then, in another paragraph, says that, *"one such property is the Thebarton Council Depot with or without the incinerator"*. It then states that, *"The property was one which both former Councils agreed should be sold as soon as possible"*.

Such an approach provides us with quite a problem, as you can well imagine. However, your Council believes that a very persuasive case can be made as to why the WIA should be allowed to retain occupancy of the building and that this should be achievable with goodwill on the part of both parties involved and within the frame-work of sustainable costs for the South Australian Division of the WIA.

It is necessary that some aspects of the negotiations being conducted by the VK5 Division must, for the present time, be kept in confidence; however, your Council believes that members have the right to be made aware of the situation.

Meantime, we also must be prepared to develop a "fall back" position in the event that we are not successful in retaining the occupancy that we desire.

Future Action

I will address you further to keep you informed, in due course, and also hope to suggest some ways in which members may be able to help. This will, of course, depend upon how we fare in the current action.

Let me assure you that your Divisional Representatives regard this matter with concern as the Burley Griffin Building still plays a major part as a strategic location for the WIA in this State. They will be doing their very best to protect your interests and those of amateur radio generally.

The Divisional Council desires members be kept aware of activities being pursued within the Division. Other members of the Council will be speaking to you on the weekly news broadcasts from time to time.

So, I hope that in the not too distant future I will be able to announce a satisfactory conclusion to this particular saga.

"QRM" News from the Tasmanian Division

Robin L Harwood VK7RH

Your Divisional Council met in Penguin on Saturday, 19 July 19. Unfortunately, our Divisional secretary unexpectedly fell ill the evening prior, and your scribe was surprised to find himself recording the minutes. All councillors, with the exception of VK7BE and VK7JK, were in attendance and John Bates VK7RT, who happens to be Southern Branch secretary, was in attendance as Divisional Awards Manager.

In the three hour meeting, quite a lot of ground was covered with emphasis on the recent Federal Convention, attended by Andrew VK7GL who is now our Federal Councillor.

Several ideas were canvassed on how to promote the hobby and the Division. Ideas suggested included personalised number plates, publicising Amateur Radio Day on milk cartons, utilising various community notice boards in the media, and circulating flyers at various tertiary institutions. Also, the Divisional secretary has written to other Divisions to ascertain what they are using to promote the hobby.

Plans were discussed for the proposed Divisional Annual General Meeting, which is six months away, and Council confirmed that it will be held in Launceston. The Northern Branch is investigating possible venues and also staging other related events together with the AGM. They will report back at this month's Council meeting in Hobart.

VK7RT discussed the Divisional awards and the apparent lack of interest and enthusiasm following his recent request for input on these. After discussion, we decided to concentrate on the Tassie Devil Award, as this is clearly the most popular award interstate and overseas. A proposed Worked All VK7 Award, based on local government boundaries, has had to be put on hold awaiting legislation to define local government boundaries. The present 29 could be reduced to 15, or even three. So it is prudent to see what does happen before formulating an award.

Anthony J Cope VK7CAJ was admitted to the Division as a member. The next meeting is proposed to be on Saturday, 20 September at the Domain Activity Centre, Hobart to commence at 10.30 am.

Ron Churcher VK7RN, our president, recently visited the Southern branch general meeting and also showed a video of his recent trip to Canada and Europe.

Last month, the Northern Branch had a very interesting lecture by one of its members on the mobile communications trunking system that is being installed in Tasmania. This month's meeting will not be at the TAFE College but at a welding workshop. This has been arranged by Elwyn VK7ZEH. For directions, listen to VK7WI. I am certain that somebody will be up on the repeaters for those who may get lost.

Don't forget to put in your Remembrance Day Contest logs as soon as possible to assist VK7's effort this year.

Meetings this month are: Southern Branch on Wednesday, 3 September at 2000 hrs at the Domain Activity Centre; North-western Branch on Tuesday, 9 September at Penguin High School, Dial Road, Penguin to commence at 1945 hrs; Northern Branch on Wednesday, 10 September at 1930 hrs, the venue to be advised on VK7WI; and Divisional Council on Saturday, 20 September 20 1030 hrs at the Domain Activity Centre, Hobart.

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FTAC Notes

*John Martin VK3KWA, Chairman, Federal Technical Advisory Committee**

160 Metre Band Plan

Last month's notes on 160 metres have stirred up hornets, with some complaints that I intended to rush in with band plan changes without consulting with the users of the band. In my defence I would point out that if I didn't intend to find out what people wanted, I wouldn't have asked for comments! As it happens, I have received some strong objections to last month's proposal, so it is obvious that it needs a closer look.

The following comments were received from Bob VK3ZL, Ian VK3DID, and Eric VK3AX. I have edited them together to save space.

"The band below 1825 kHz is used for all mode operation and there is little or no DX activity there. Europeans do not operate below about 1835 kHz because of QRM from other services. Most DX is found between about 1828 and 1838 kHz, and this is where the DX window should be.

"Stations which are capable of working DX are able to hear weak signals regardless of local activity, especially if they use fast AGC. With the high noise levels on 160, a station that is strong enough to be heard above the noise is also strong enough to break in.

"The primary amateur allocation extends only up to 1825 kHz, so why try to move most of the activity into the secondary allocation where commercial users have priority? Confining local contacts to 1850 kHz and above is not appropriate with a band that extends only to 1875 kHz. It would be different if we had the same 200 kHz allocation as other countries.

"The majority of 160 metre operators already manage the band quite efficiently and with excellent co-operation. If anyone wishes to try to work a DX station, the group is only too happy to wait or to change frequency.

"The band plan must be consistent with actual operating habits. If these changes are adopted, most 160 metre operators will simply ignore the band plan and continue to operate as they do now." I can accept that the majority of 160 metre operators are co-operative and willing to stop transmitting or change frequency if anyone hears a DX station and wishes to call him. On the other hand, not all of us feel comfortable about having to ask another amateur to change frequency, no matter how willing he may be to do it.

So, we have had one correspondent who says that there is a QRM problem, and this month three who say that there isn't. Who is right? I think they all are. What is acceptable to one person can be a problem to someone else whose operating habits are different. There needs to be a compromise, so that the band plan can reflect the wishes of all of the users of the band. Not an easy task!

To keep the pot boiling, here is the suggestion made by VK3ZL:

1800 – 1825 All modes\
1828 – 1838 CW DX window\
1838 – 1875 All modes including SSB DX and local

Any further comments would be much appreciated.

Interference Problems in Store on 70 cm?

As reported last month, the ACA has decided to go ahead with class licensing for LIPDs (Low Interference Potential Devices) in the band 433.05 – 434.79 MHz. It is interesting that the name of these devices has been changed: they used to be called LPDs (Low Power Devices). Maybe the change of name will reduce the possibility of interference!

There have been many reports in Europe of serious problems with devices such as car door locks, because of the poor selectivity and blocking characteristics of their receivers. It is a shame that we always seem doomed to repeat the mistakes made in other countries. I wonder how much inconvenience the manufacturers would have suffered if they had been required to put them on a more suitable frequency.

I am especially concerned about wireless headphones. Some amateurs may receive music from their neighbours if they operate simplex around 434 MHz. It is also possible that headphones could key up repeaters, but unlikely because most repeaters are not in residential areas.

A worse problem is the fact that an amateur could wipe out a neighbour's headphones, even if he transmits outside the LIPD allocation. These devices have no interference protection, so the amateur would not get a "bluey" from the ACA. But he could receive a brick from his neighbour. Another case of the amateur being forced into an unpleasant situation even though he is not at fault.

These devices are on the market already, so it won't be long before we start finding out what the problems are. I would be very interested in any reports.

**PO Box 2175, Caulfield Junction, VIC 3161*

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Club Corner

Radio Amateurs Old Timers Club of South Australia

The annual luncheon of the RAOTC of South Australia will be held on Thursday, 23 October 1997 at 12 noon at the Aviation Institute Club, James Schofield Drive, Adelaide Airport (opposite the International Airport Terminal).

If you are going to attend, please RSVP before 19 October to either Jack Townsend VK5HT on 9295 2209; Ray Deane VK5RK on 8271 5401; or Lew Schaumloffal VK5AKQ on 8263 0882.

The cost of the two course meal will be $12.50 per head, to be paid at the door. If you will be coming by public transport, take T/Ad 278 to stop 9.

Ray Deane VK5RK
Secretary

Radio Amateurs Old Timers Club of Australia

Our usual luncheon will be held on Tuesday, 16 September at the Bentleigh Club in Yawla Street, Bentleigh. Doors open at 12.30 for lunch at 1.00 pm and the cost will be $24.00 per head inclusive.

The speaker will be Dr David Warren PhD, the man who invented and developed the 'Black Box' flight recorder now widely used in aircraft. Dr Warren is very much in demand as a very interesting speaker and we are grateful that he agreed to speak to us.

Amateurs who are not members of the RAOTC will be welcome to be with us for the lunch provided a firm booking is made with the Secretary, Arthur Evans VK3VQ, 3/237 Bluff road, Sandringham 3192 not later than Thursday, 11 September.

Allan Doble VK3AMD

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How's DX?

*Stephen Pall VK2PS**

All of us, especially those who are interested in propagation and ionospheric predictions on the HF bands, are wondering how this new solar cycle 23 will shape up in the future. It is now widely known that cycle 22 died, reaching its minimum during May 1996.

Since then we are all hoping, some of us week by week, that the instant 'wonderful DX' is just around the corner.

"*Not quite so*", says Dr Richard Thompson, one of the scientists at the Australian Ionospheric Prediction Service. In a telephone discussion early in August 1997, he stated that the new cycle is coming up very slowly, compared with cycle 22 which rose rapidly from the bottom.

"Since May 1996 the smoothed sunspot number rose by only 2.5 in eight months, and reached 10.7 in January 1997. It is possible that by August it had risen to 25. There are quite a number of regions on the surface of the sun, showing growing sunspots; however, these regions tend to collapse prematurely and the whole process then stops. There is no constant growth yet as in previous cycles."

Dr Thompson hopes, however, that the coming months will show an accelerated rise in the sunspot numbers.

VK2WAH – GB2VK

On 22 September 1918 the first direct wireless message was transmitted from the United Kingdom to Australia. The message was sent by the then Australian Prime Minister, Billy Hughes. It was transmitted by Guglielmo Marconi from Carnarvon, Wales and received by Ernest Fisk at Wahroonga, 20 kilometres north of the City of Sydney. Members of the Wahroonga Amateur Historical Radio Association will celebrate the 79th anniversary of this historical event by activating the special event station VK2WAH for 24 hours on 22 September, on CW, SSB and FM operation on a variety of bands.

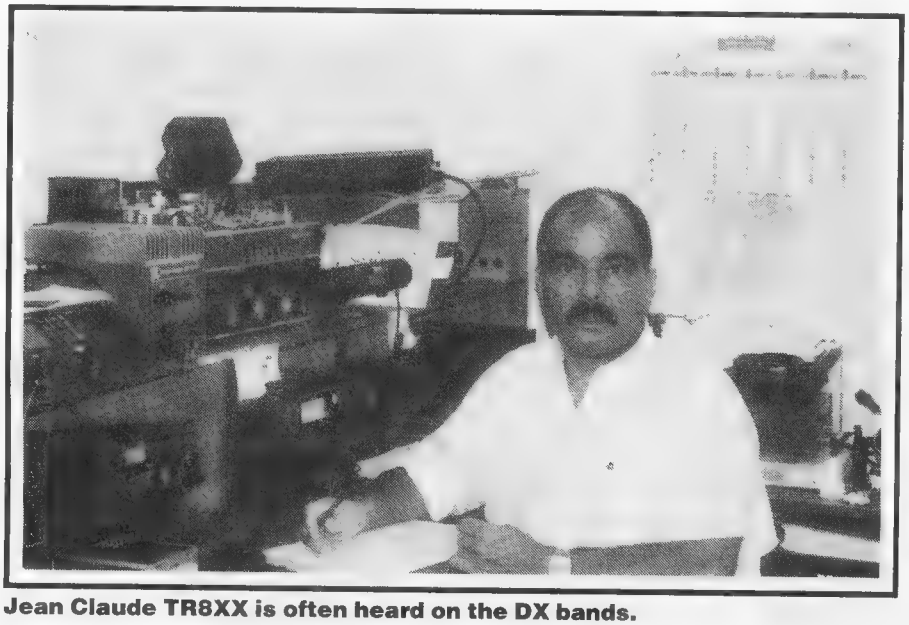
On the same day, 22 September, the Dragon Amateur Radio Club in Wales will also celebrate the same event by activating the special event station GB2VK. QSLs to VK2WAH may be sent to VK2KAA via the QSL Bureau, or direct to Jo Harris, PO Box 600, Wahroonga, NSW 2076 Australia, with a SAE and return postage.

Libya – 5A

Here is an opportunity to work Libya, if you missed the previous activities.

A group of Austrian amateurs OE1AOA, OE2GRP, OE2KTO, OE3ICS, OE3SGU, and OE6DGG will be active from Libya with Charly OE3KLU from 28 August to 7 September with the special callsign 5A28, a callsign which celebrates the 28th anniversary of the Libyan revolution. They will also take part in the All Asia DX SSB contest. Operating frequencies are CW: 1838, 3508, 7008, 10108, 14028, 18078, 21028, 24898 and 28028 kHz; SSB: 1848, 3798, 7048, 14198, 18148, 21298, 24948 and 28498 kHz; RTTY: 14088, 21088 and 28088; and 6 m on 50.098, 50.128 and 50.208 MHz. QSL to OE2GRP, Recep Gursoy, Moserkellergasse 16, A-5202, Neumark AW, Austria; or to OE2GRP via the QSL Bureau.

If you were unable to contact the Austrian group, wait until November when a group of four German operators will be on the air from the Tripoli Club station 5A1A. This operation will begin on 24 November and will last until 4 December 1997. The group plans a serious entry in the CQ WW DX Contest. Activity will be on all bands including WARC and 160 metres with operations on CW, SSB and possibly RTTY. The Germans will have two stations with amplifiers on the air simultaneously as often as possible. Operators will be Andy DJ7IK, Dieter DL3KDV, Felix DL8OBC and Thomas DL1GGT. The QSL manager (for this operation only) will be DL3KDV. Please send your QSLs via the Bureau to DL3KDV, or directly to Dieter Voss DL3KDV, Friedrichsthal 21, D-51688, Wipperfuerth, Germany.



Jean Claude TR8XX is often heard on the DX bands.

Montague Island VK2IOM

The JARA Group (Japanese Amateur Radio in Australia) is planning to activate a new island for the IOTA (Islands on the Air) program. Activity should take place on the weekend of 13 and 14 September from approximately 0000 UTC on the 13th to about 0400 UTC on the 14th.

The group received permission from the NSW National Parks and Wildlife Service, Narooma District, to operate from the island using the callsign VK2IOM. Proposed frequencies are SSB: 7055, 14260 and 21260 kHz; and CW: 7006, 14026 and 21026 kHz.

Montague Island is 7 km off Narooma, is the largest inshore island on the NSW coast, and was discovered in 1790. Because of its importance to shipping, a lighthouse was erected there in 1881. The JARA Group consists of Ken Arakawa VK2IAZ, Ken Yamashita VK2IY, Atsu Asahina VK2BEX and Kyoko Tanabe VK2TJH. QSL to VK2BEX via the QSL Bureau, or direct to VK2BEX, PO Box 195, Killara, NSW 2071. Unfortunately, Ken VK2IAZ had to withdraw from the activity because his employer decided that he should take up a new assignment in New York. The sudden change might cause the abandonment of the expedition.

Australian Amateurs on the ARRL DXCC Honour Roll

The July issue of *QST* has published the list of the DXCC Honour Roll members as at 30 September 1996. The following Australians were mentioned. **Mixed – 328**: VK3DYL/333, VK3QI/341, VK5QW/333, VK5WO/363, VK6HD/353 and

VK9NS/333; **327**: VK2FH/338; **326**: VK3EW/331, VK6RU/38O and VK9NL/331; **325**: VK1DH/330 (now SK); **320**: VK2AVZ/330. Those who worked P5 (North Korea) to make 329 were five JAs and OH3YI.

Phone – 328: VK3DYL/333, VK5MS/379, VK5QW/36O, VK6HD/352, VK6LK/35O and VK9NS/333; **326**: VK1ZL/331, VK3QI/338, VK4LC/365, VK4RU/379 and VK9NL/331; **325**: VK3AKK/327; **323**: VK3SX/323; and **322**: VK1DH/326 (now SK). Only two stations worked the P5 to make 329 and they were JA1BK and OH3YI.

CW – 328: VK9NS/333; **326**: VK9NL/33O; and **324**: VK6HD/333. Four JAs worked the P5 for 329 on CW.

DXCC Countries Approved

In a press release dated 10 July 1997 the DXCC advised that documentation has been received and approved for the following DX activities: 3A/DJ7RJ, 3B8/DL6UAA, 3B8/EA3ELM, 3C5Z, 3D2UK, 3XY03A, 8Q7AF, 9H3VG, 9H3VH, 9H3WD, 9H3WM, 9K2/YO9HP, 9U5T, BS7H, C50YL, C53HP, C93/JA6SJN, C93/JG6BKB, C93/JR6XIW, D25L, D2FIB, D68KS, ES1HR, ET3FB, HS9AL, J3X, J6/F5CCO, J75T, J77C, J77FT, J79BP, J79QA, J79RC, J79WP, PJ8DX, S07NY, SM5ENX/DU1, T32HA, TI8/AA8HV, TI/ON7ZM, TL8EJ, TN7A, TO5C, TT6FNU, TY1RY, V5/DK2WH, V5/W8UVZ, VK0IR, VK9FL, VK9PG, XT2GA, XZ1N, YV7/AH6OM, YV7/WH6DAG, Z2/SM0FIB, and ZK1JOO.

Future DX Activity

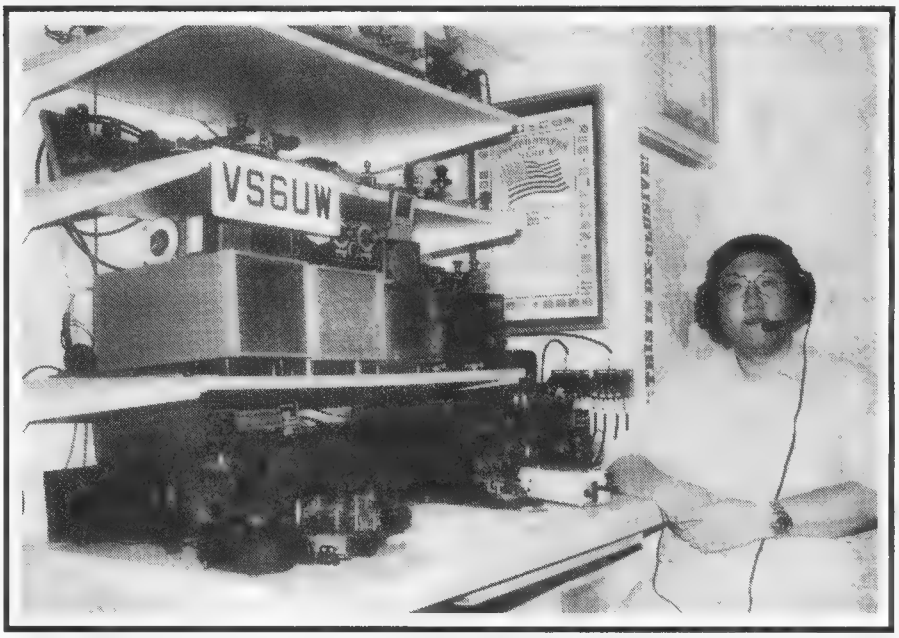
* Sergio (ex-VU3CUR)is in Pakistan for a couple of years on business. He operates now from the club station AP50WAP whilst waiting on his personal call. QSL via IK4ZGY.

* Lou VA3RU will use the call CY9DX from St Paul Island from 12-22 September. QSL via VA3RU.

* Hans PA3GKI will be in the Philippines between 8 August and 18 October. He will try to operate as 4F2DX from a number of IOTA groups. QSL to the Dutch DX Group, PO Box 232, 7670 AE, Vriezenveen, Netherlands.

* Masa JH6VLF and Seiji JH6RTO will be active from Northern Mariana Island, with the additional prefix of KH0 and also as AH0R between 12 and 16 September. QSL via the home call. JH6RTO's new address is S Fukushima, 1182-1 Hase, Atsugi 243 Japan.

* Scott AE4FY will be stationed for the next two years in Iceland from where he will be active as TF/AE4FY. QSL via K4GZ.



Ray VS6UW, the well known DXer and CW operator.

* Charlie W0YG plans to be active on CW only from Namibia as V5/ZS6YG during the months of August and September. QSL direct to Charlie Summers, 6746 North Yucca Trail, Parker, CO 80138-6110, USA.

* Larry WB6VGI will be active for about one month starting on 20 August from Guantanamo Bay on CW and SSB as KG4ML.

* Alex RA1PC is currently active from Heyss Island, Franz Josef Land as R1FJR. He also operates the club station R1FJL. QSL via RK1PWA.

* The World Bank Amateur Radio Club station 4U1WB is active, mainly on 20 metres SSB after 2100 UTC. QSL via KK4HD.

* Jame, the operator of KC4AAC at Palmer Station on Ansvers Island is on 14175 kHz everyday at 1800 UTC until October.

* It is rumoured that an all-band, all-phone DXpedition to Kure Island KH7K, involving five to six operators, will be active in the second part of September for one week.

* Pai VU2PAI will activate the special event station VU2PAI/50 until 30 September 1997, to celebrate 50 years of India's independence. QSL direct via Box 730, Mangalore 575003, India. Pai is an avid stamp collector.

* Gary S92AT is now active in Sao Tome using CW and SSB. QSL via NJ2D. Claude TL8BC can be found between 14118 and 14132 kHz around 1600 to 1700 UTC. QSL via F5IPW.

* Jan Pierre F5TRP was heard from Chad using the callsign TT8LJP both on CW and SSB. He will be there until 15 October. QSL via the home call.

* Francois TK5AE will be active from 12 August to 22 September as HS0/TK5AE or as HS0AC on 3770, 7077, 14177, 21277 and 28477 kHz and also on CW at the lower edge of the band. QSL via the home call.

* Alain F2HE will be active as FG/F2HE until 25 September from Guadeloupe Island, mostly on CW.

Interesting QSOs and QSL Information

* 5B4/G3LNS – 14024 – CW – 0454 – June. QSL to home call via the QSL Bureau.

* 7Q7JL – John – 14222 – SSB – June. QSL via Allan Hickman G0IAS, The Conifers, High St, Elkesley, DN22 8AJ, Retford, Notts, UK.

*SV5/G4FMK – Al – 14164 – SSB – 0517 – June. QSL to Al Smith, PO Box 20, Kalymnos 85200, Greece.

* ZF2MD/8 – David – 14164 – SSB – 0601 – June. QSL via David Monette K7JI, 6918 NE 79th Ct, Portland OR 97218, USA.

* XW1 – Zorro – 21295 – SSB – 0623 – July. QSL via Yasuo Miyazawa JH1AJT, PO Box 8, Asahi, Yokohama 341, Japan.

* CY9AA – 7024 – CW – O613 – July. QSL via M Smith VE9AA, 271 Smith Rd, Waterville, Sunbury CO, NB E2V 3V6, Canada.

* OJ0/N4GN – Tim – 14195 – SSB – 0616 – July. QSL via KJ4VH. Timothy B Totten, 8309 Dawson Hill Road, Louisville, KY 40299 – 5317, USA.

* 9J2DR – Rich – 14005 – CW – 0637 – July. QSL via Box 30062, Lusaka, Zambia.

* T33JH – Jack – 14222 – SSB – 0553 -

July. QSL via Jack Haden VK2GJH, PO Box 299, Ryde NSW 2112, Australia.

* JT1BG – Bator – 14193 – SSB – 1239 – July. QSL via S Bator, Box 158, Ulan Bator 13, Mongolia.

* CH6RCH – Heinz – 14255 – SSB – July. QSL via Thomas Henry Evans VE6BEX, RR1, Andrew, Alberta, T0B 0CO, Canada.

* VK9LL – Hiro – 3503 – CW – 1107 – July. QSL via Junichi Tanaka JH4RHF, PO Box 61, Toyanaka, Osaka 560, Japan.

From Here and There and Everywhere

* It was reported by Luciano I0JBL that the operators of HV3SJ, HV1CN and HV2VO left the Vatican some time ago and the stations have closed down. It appears that the only station active from Vatican City is HV4NAC, which is operated from the Pontifical North American College.

* The special prefix AP50 will be used by the Pakistani amateurs until 30 September to celebrate the 50th anniversary of Pakistani independence.

* JW0M (op Jack) is located at the Polish Academy of Science on Svalbard. QSL direct to PO Box 35, 80-325, Gdansk 37, Poland.

* Tensai ET3BT has no manager. QSL direct to Tensai, PO Box 6228, Addis Ababa, Ethiopia.

* If you worked VI0ANARE, that station was not located anywhere in Antarctica. The custodian of the callsign is Trevor VK4ARB. The special event callsign commemorates the 50th anniversary of the establishment of ANARE, Australian National Antarctic Research Expeditions, in 1947. The callsign is operated by a few Queensland amateurs and will be on the air until the end of October. QSL direct to Alan Roocroft VK4AAR, Post Office Dalveen, QLD 4374, or via the QSL Bureau to VK4ARB.

* The operator at 5A1A, Abubaker, reports that he can QSL any 5A1A contacts starting August 1995. He cannot use a QSL Manager, and he suggests the use of registered Air Mail and two green stamps, as IRCs are not useable in Libya. Abubaker is 25 years old and he is employed as an electronic engineer. His address is Abubaker Alzway, PO Box 74421, Tripoli, Libya, Africa.

* Do not expect a QSL card from Ahmed (YI1AU). Unfortunately, Ahmed was killed in a motor car accident. He was 30 years old and by profession a medical doctor.

* The new address for the Polish QSL Bureau is PO Box 42, 64-100 Leszno 7, Poland.

* CH6RCH was a special event station celebrating the 100th anniversary of the establishment of the Orthodox Church in Canada.

* Pavel UX2HO is active as EM1HO from the Ukrainian Vernadsky Base until February 1958. QSL via I2PJA.

* Rolf SM5MX is again on the bands as XV7SW until mid-September when his tour of duty will terminate and he will return to Sweden.

* Zoli HA5PP was supposed to be in Yemen in June. Unfortunately, his work assignment has been cancelled, so for the immediate future there is no prospect to work Yemen (7O).

* Tim N4GN and the group made 11,000 QSOs (including 600 on RTTY) during their three days stay on Market Reef using the call OH0/N4GN. Martti OH2BH, a member of the expedition, reported that the weather on Market Reef was not very good and they had to use a helicopter for landing on the reef.

* A new group has recently taken over the responsibility for the United Nations HQ amateur radio station 4U1UN. They intend to be active more often. QSLs as from 1 April 1997 go to W6TER.

* Gilbert ZD7BG is active on CW on 80-10 metres. He was heard around 14015 kHz between 1900 and 2100 UTC. QSL to PO Box 157, Jamestown, St Helena Island.

* If you worked OA176QV, it was Cesar OA4QV celebrating the 176 years of Peru's independence. QSL direct with a SAE plus two IRCs to Cesar Aguirre, PO Box 957, Lima 18, Peru, South America.

* I heard Tom VR6TC saying on the band that the present population of Pitcairn Island is now 29, plus one nurse, one school teacher and one pastor. Many members of the younger generation (among them licensed amateurs) have left the island to seek their future in New Zealand, Norfolk Island and Australia.

* The boat which was to take Frank YJ8AA to Emai Island in the Shepherd group of islands (see June 97 *Amateur Radio*) was still in the hands of marine engineers at the end of July. The new schedule of the proposed expedition will allow for three to four short trips from Thursdays to Tuesdays, and the working days will be on Friday, Saturday, Sunday and Monday.

* Jack has managed to operate from Banaba, despite earlier boat problems.

* VK9LL was Hiro JH4RHF on Lord Howe Island. Please note that this is a re-issued call. Do not confuse it with Duane W6REC who operated with this call from Lord Howe in April 1984.

* There was some confusion about the correct QSL Manager's address for Tom, VK0TS. The manager is S N Trotter VK1AUS, PO Box 2063, Kambah Village, ACT 2902, Australia.

* The Kermadec DX Association, who had a successful activity on Raoul Island in May 1996 as ZL8RI, is now preparing for a major expedition to Campbell Island in January 1999. They intend to stay on the island for three weeks. The estimated cost of the expedition is $US45,000. If you can help, send your donations to Ken Holdon ZL2HU, expedition leader of the Association at PO Box 56099, Tawa, Wellington, New Zealand.

* The first DXpedition to Libya took place in July 1995 when Toly UT3UY led a small party of Ukrainian amateurs and operated from Tripoli. The activity was finally recognised and accepted by the DXCC in May 1996. Twelve months later, in July this year, a pleasant surprise landed in my letterbox, a QSL card from 5A1A for the CW contact made two years ago. "Toly" advises that QSL cards for the contacts made in July 1995 can be obtained from him at the following address: Anatoly Kirilenko, PO Box 439/3, Kiev-151, 252151, Ukraine. I sent him two IRCs and a reply address label only instead of a reply envelope. I used a printed postal label instead of stamps on my envelope.

QSLs Received

K8VIR/ZL9 and ZL9DX (3 m – op Ed Hartz, PO Box 480, Green Valley, AZ 85622-0480, USA); 7Q7JL (3 w – G0IAS); YI1US (3 w – WA3HUP); A41LZ (4 w – op Murtadha Ahmed Sultan, PO Box 2837, Ruwi, Muscat 112, Oman); ZL8RI (3 w – ZL2HU); 9M6TCR (2 w KQ1F).

Thank You

Many thanks to all those who supply me with news and other information which helps putting these notes together. Special thanks to VK2XH, VK2IAZ, VK2KAA, VK2KFU, VK2TJF, VK5WO, VK6WR, UT3UY, ARRL DXCC Desk, Dr Richard Thompson of IFS, INDEXA, *QRZ DX*, *The DX News Sheet*, and *The 425 DX News*.

PO Box 93, Dural NSW 2158

ar

Prevent pirates – make sure you sell your transmitter to a licensed amateur

International Amateur Radio Union Monitoring Service (IARUMS) – Intruder Watch

*Gordon Loveday VK4KAL**

Mode R7B

For the new observer (and the not-so-new observer can be reminded), this mode is amplitude modulated, reduced carrier, multi-channel, voice frequency telegraphy. In other words, it sounds very much like a large circular saw in operation. Observation of this mode should be very detailed as to bandwidth, which can be up to 7 kHz. Where possible, sufficient time should be given to "pin-point" the centre frequency, and also the band edge frequencies.

If your receiver has one of those "old fashioned BFOs" it is not so hard, otherwise your familiarity with your receiver will pay dividends.

It is desirable for the observer to spend some time on the frequency, stating time of observation, length of observation (which should be no less than 10 minutes), number of times heard, etc.

The ACA are in a position to extract enough information as to the location of the intrusion, etc, provided we give them sufficient information as above.

Mode B9W

This mode is very similar in sound to R7B. It has one or two guard carriers about 3 kHz apart, and sounds like a distant "jet aero engine". In the past, a lot of B9W modes, on closer checking, have actually been R7B. So check, and then double check!

Harmful Interference

Owing to the complexities of the band sharing in the three IARU Regions, reportable harmful interference can only be considered if the operating amateur is UNABLE to move his transmitter frequency, eg close to a band edge. Where able to QSY, it becomes "nuisance category only"; in other words, the amateur may have to put up with it!

This applies in shared bands, 80 m for instance. 3500 – 3700 and 3794 – 3800 kHz in IARU Region 3 is shared with the fixed services. It is NOT exclusive to the amateur service! RTTY (F1B) and CW (A1A) non-amateur signals cannot be considered intruders, but broadcast stations are!

On 1825 – 1875 kHz the amateur service is secondary.

7100 – 7300 kHz is shared by international broadcast stations only. Any non-amateur signal, other than broadcasters, in this band can be considered as an intruder. Likewise non-amateur F1B and A1A signals are intruders.

The 12, 17 and 30 m bands are shared bands, as is 14250 – 14350 kHz with Iran, Peoples Republic of China, and USSR (CIS) fixed services. Other broadcast stations are intruders.

When logging broadcast stations, pay particular attention to general remarks which could lead to identification; also any address given plus details of traffic, signal strength, and beam headings if possible. If a dipole is used, supply the direction of the antenna, eg north/south, east/west, etc. Be specific, please!

I do not have e-mail, but messages can be left for me c/o *vk4un@tpgi.com.au*. I am back on packet.

**Federal Intruder Watch Co-Ordinator, Freepost No 4 Rubyvale QLD 4702 or VK4KAL@VK4UN-1*

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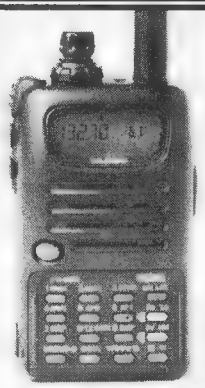

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It's hard to believe that one little hand-held dual-band radio could almost single-handedly redefine the concept of what an HT should be able to do, but the radio at left, Yaesu's FT-50R, has done just that. It's now been enhanced with new features — and this month you could *win* one.

Your September R&C is a 'must read' for all amateur radio operators. This month's features include...

- **OUR BANDS UNDER THREAT! The WIA's Roger Harrison examines some disturbing developments.**
- **REVIEW: Kenwood TM-V7A. A new remote-control dual-band mobile which looks really different.**
- **CONSTRUCTION: Build a BFO, then build a ATU. Two projects, with complete details and schematics.**
- **REVIEW: Yaesu FT-50R. More features for the same old price. Is it now an answering machine?**
- **PHASE 3-D. The most ambitious amateur satellite project ever. With great AMSAT-supplied photos!**
- ***As usual, we have our three DX columns, mods and more... the best stories and regulars every month!***

Don't miss out — **RADIO and COMMUNICATIONS** is great reading for amateurs!
Check your local newsagent today!

(PS. We also have the biggest collection of radio-oriented Classified adverts in the country. There's lots of them because they *work* so well. Ask your newsagent to keep a copy for you each month, or ring 1800 25 2515 for subscription details. Hurry — you might *miss* something!)

Over to You – Members' Opinions

All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

Morse Clarification

I am concerned that anyone reading paragraph four of Mr Gerhardt's reply in *Over To You* in the July issue of *Amateur Radio* may erroneously believe that I referred to Morse code users as idiots or dodos. I did not use the term idiot or imply it in respect of anyone. Dodo was used in reference to the NEED for Morse being as dead as the dodo. Further, lest it be raised later, reference to "shouting at terrible ignorant foreigners" is well known in stories of bad behaviour in the days of the British Empire. I do not resort to gratuitous name calling to support my point of view.

With the Editor's indulgence I will answer the points he raised as follows:

1. A good example of the sender and receiver using a common language. Remember some people use various languages and have neither the ability to speak or hear.

2. Reminds me of my days in sending five letter groups of coded messages. Now, however, we can use fax, RTTY and packet and a copy of the message as sent kills any argument as to whether an error was made.

3. Ever heard of Ebola, mass starvation, or Aids? *(Worse than war. Ed)*

4. I have heard CW signals outside amateur bands and many sound machine perfect, if you get my meaning.

5. I agree with the amateur's role in emergencies. However, other bands in the spectrum are in far more danger than HF at this time. It is interesting to note that in the country most likely to have most to say regarding the retention of Morse code, the USA, one is now examined only on receiving and not sending Morse.

6. I am pleased Mr Gerhardt finds his knowledge of Latin useful, however my occupation required a knowledge of both Latin and Greek terms and names, gained without the trauma of compulsory school studies of either language, which are of no earthly use to the vast majority of people.

If anyone wishes to use Morse, so be it, and I for one will respect and support their right to do so, but let us not still consider it a sacred cow that all must bow down to. The only thing that will save our share of the RF spectrum is the number of persons using it and the "political clout" that number represents, not the modes we use. Anything which prospective amateurs perceive as irrelevant to this day and age, and dissuades them from joining the ranks, only hastens the demise of amateur radio, like it or not!

D Palmer VK2TMP
20 Elm Street
Tamworth NSW 2340

Why Join?

Whilst I was out walking at about 3 pm on Wednesday, 23 July, I was listening to the VK3RML repeater when I heard two amateurs in conversation. One was a member of the WIA, the other said he was not. He indicated the reason was that DX was not coming in and he was not expecting any QSL cards. Therefore, as he was not using any WIA service, he saw no reason to join.

I will not quote call signs, because it was difficult to distinguish between an "M" and an "N" in one call sign, and an "F" and an "S" in the other. Therefore I don't want to cause any embarrassment by misquoting a call sign, but the member concerned will know who I mean.

Isn't it strange (or is it?) that a non-member can be so ignorant of what the WIA does that he says he doesn't use WIA services, when he commented that he would talk to his friend the following week on the VK3RSG repeater. I wonder who he thinks supplies the repeaters, pays the licence fees and maintains them? The mysterious 'they' I suppose.

I would have made my point personally but I couldn't trip the repeater at the time with my hand-held radio.

Don Jackson VK3DBB
55 Ryan Road
Pakenham VIC 3810

Federal Finances

The June issue of *Amateur Radio* carried reports of Institute activities which, while admirable in their detail, omitted to reflect or provide information on two of the most important areas of immediate concern: finances and future directions.

If one did not listen to Divisional Sunday broadcasts, one could believe that Institute

QSP News

John Oswald VK2BOJ seated at his very neat amateur radio station. His newly awarded Fluke 12B multimeter membership prize, still in its wrapping, is on the desk near John's elbow.

Another New WIA Membership Prize to VK2

Another $195 Fluke 12B digital multimeter prize in the WIA's Recruit a Member campaign has been won by a VK2 new member, this time by John Oswald VK2BOJ from Taree.

The presentation to John was made by the WIA NSW Division President, Geoff McGrorey-Clark VK2EO.

Congratulations, John.

affairs, financially and administratively, were in the best of health. Omitting to publish a balance sheet with the Annual Report roused my curiosity, so I arranged to see a copy of the financial statements; non-publication made sense, if saving face was the main issue.

A loss of over $44,000 for the current year, added to those of previous years and, no doubt, one to be recorded for the year ahead, is of immediate concern. Contributing factors are, of course, a large drop in membership, and less income from investments. The costs of printing and mailing *Amateur Radio* exceed income from advertising and the like by some $80,000 and, while membership subscriptions are supposed to fund the publication of a monthly journal, the magnitude of the discrepancy must be open to question.

It would appear that the future viability of the WIA is at stake. Falling membership is a reflection of the lack of interest in radio communication/experimentation vis-à-vis computers and their off-shoots which presumably demand the attention of today's youth.

Policy and planning on future direction of amateur radio was given two lines on p22 of June's *Amateur Radio*. The non-addressing of problems of fundamental importance and a reform of the administrative structure with attendant finance requirements are sins of omission.

What is the purpose of detailed discussion and costly visits to overseas societies and ITU conventions if delegates have no idea as to where or what amateur radio will be in two, five or ten years time? With the Institute strapped for cash, surely it would be wiser to devote energies to examining our future at home as communicators/experimenters – much more productive than discussing the minutiae of band plans, awards and the fluff on the periphery of amateur activity.

Financially, money saved, at least in the short term by not socialising around the region on expensive conventions, would be better spent in reducing losses (black holes?). Telecommunications has come a long way in recent years; the same results could be achieved as effectively and more cheaply with teleconferencing. Institute administration and methodology seem to have changed little in thirty years; the rest of the world has raced ahead.

I have previously espoused the view that Divisional amalgamation/pooling resources must be considered; what's to stop a trans Tasman amalgamation? The NZART may well be amenable to an economy of scale.

Peter D Williams VK3IZ
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Metung VIC 3904

Blaming the WIA

There never seems to be an end to correspondence blaming the Wireless Institute of Australia, Internet and Morse Code for the shrinkage of the ranks of amateur radio operators. Or should we say the replacement of Silent Keys by up-and-coming youngsters. These excuses fall into the same category as immigration, dole bludgers and high wages being used as excuses for national economic problems. They are scapegoats because they happen to be visible and handy targets.

Let's take the first-mentioned three, eliminate them, and then have a look at some other reasons that seem to be ignored by the popularists.

The WIA is only an organisation; it is not a decision making entity in itself. It is us amateurs who are the WIA, so if the WIA is to blame, then we are to blame.

Internet is to blame? What a lot of hogwash. Voice is still the biggest user of communication resources throughout the world and nobody expects that to change significantly within the foreseeable future. It requires the minimum of hardware and gives the maximum interpersonal human communication benefit. After all, we all speak a language don't we? We would rather hear a reassuring word than read it, wouldn't we? Where else can you have an open line to the world for a mere $50 per year?

Morse code, the good old whipping post of non-amateurs, or should I say amateurs and non-amateurs who wish they had access to the premium bands. I'm not going to get into this fray as I see pluses and minuses for all arguments for and against its abolition. But the fact remains, it's not up to us here in Australia. International treaty decides the fate of Morse code on international bands, so why waste valuable time chasing a horse that is not due to he ridden again until the year 2000. Don't fight each other over the subject, lobby the ITU.

Now that we've got rid of that lot, let's have a look at some facts that certainly do not help recruit new blood to the hobby of amateur radio.

I have on many occasions tuned up on 40 metres and put out a call asking someone to come back and talk to my grandson. No reply! Even though, if I call CQ not long after, I get replies.

Why is it that all the amateurs disappear when JOTA takes to the air once a year? I attend most JOTAs and sometimes it's impossible to get another scout/guide station. What's wrong with a local amateur calling in for a rag chew? Also I have heard complaints from 2 m users that scouts/guides should not be using repeaters during JOTA. OK, what's

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wrong with 70 cm repeaters opening up for a rag chew with the scouts/guides? Come on, fair go, one day of the year as a PR exercise shouldn't be too much a price to pay to secure the future of the hobby that gives us so much enjoyment, and keeps us out of the pub or from aimlessly wandering the streets in search of personal fulfilment.

When was the last time a communications magazine published how to build a simple receiver, or how to make a very cheap CW transceiver. How many people know that you don't have to be a millionaire to be a radio ham, but can get an the air for under $500, using second hand equipment? Cheaper than that if you haggle at a hamfest.

I hope by now I have made my point. I am sure there are others who could add more.

Kevin Jones VK4AKI
178 Scarborough Road
Scarborough QLD 4020

Federal Problems

If one were to write a history of WIA federal affairs over the last ten years, what would be in it? It is likely that there would be much said about competition for shrinking resources between the seven Divisions on the one hand, and the Federal body on the other. Other matters, such as the general betterment of amateur radio, member services and the need to align the organisational structure to the needs of the membership would rate hardly a mention. Often the important seems to be ignored in favour of the urgent, so though there is movement, progress is rare.

Over the last decade, the WIA has consistently failed to attract and retain members. This has placed the Institute in an unsustainable position, trapped in a spiral of declining membership, falling income and poorer services to the members who remain. The current Federal Council understands this only too well.

However, I am concerned that in the name of saving money, Federal Council (with the best of intentions) is hastening the decline. This is most apparent in the running down of the Federal Office and the departure of dedicated, professional staff over the last few years. This has weakened the institute and has the potential to force more administrative work onto Divisional volunteers that are ill-equipped to handle it.

Maybe you do not see this degradation as a problem. Think again! Our most tangible member service, namely *Amateur Radio* magazine, is funded from the federal component of your membership subscription. The WIA's main reason for being, that of representing the amateur service to government and lobbying for the maintenance of our privileges, is a federal responsibility. Other WIA activities, such as contests, Intruder Watch and FTAC are also co-ordinated at the national level. It is essential that a strong federal organisation exists to support these functions.

Amateurs expect the WIA to be their national organisation. They become disappointed when told that they do not belong to the Federal body, but are members of a state Division. Though Institute broadcasts and *Amateur Radio* articles have tried to explain this, it is a message that people do not want to hear. People want to be members of a strong national WIA. We will not have a strong national body if current moves to downgrade federal activities go unchallenged.

Federal Council is right. Economies must be made to balance the Institute's budget. However, emasculating the Federal body is not the way to do it. Instead, attention must be drawn to the high cost of the current Divisional/Federal structure. An organisation having less than 5000 members should not need seven divisional councils and one federal council to manage its affairs! Doing nothing to change this is costing the Institute dearly, both in volunteer time and money.

The WIA Divisions are aptly named. They have outlived their usefulness and should be abolished. State-based WIA/PMG Amateur Advisory Committees disappeared long ago. Changing patterns of urban settlement have caused the rise of suburban clubs and the decline of the Divisions. People are now more likely to assist in the activities of their local club than their state Division, particularly in the larger cities. It is no accident that the two Divisions that have the highest ratio of WIA members to licensees (VK1 and VK7) are more like clubs than the larger Divisions whose membership ratios are less. The WIA's structure should change to reflect the preferences of its membership.

To prove that we could do without the Divisions, we should look at what they actually do. Such an exercise would reveal that most functions could either be taken over by a stronger Federal body or devolved to a local club. A professional Federal Office could handle administrative tasks such as membership processing. In contrast, clubs and special interest groups, brimming with the "get up and go" attitude lacking in many Divisions, could easily run services such as classes, exams and repeaters that were formerly performed by the Division. Divisions that wish to continue could change to become strong suburban-based radio clubs affiliated with the Federal body.

It seems to me that the best way forward is to have every WIA member belong to a unified Federal body to which geographic and special interest clubs could affiliate. The Federal body could be governed by a member-elected Federal Council, the size of which would be similar to the present Council. Because the Divisional component of the membership fee would no longer exist, more resources could be provided to the Federal body without raising overall subscriptions. Affiliated clubs could receive a small payment from Federal for each member who is also a member of the WIA to encourage club affiliation and WIA membership.

There will be complications in any reform, particularly for Divisions with significant property assets. However, the worth of members and volunteers to the Institute far outweighs that of bricks, mortar and land. The current structure is not serving members well and needs to be reformed before unpleasant change is forced upon us.

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Pounding Brass

*Stephen P Smith VK2SPS**

Continuing from last month's issue, we will have a look now at the second hand market for Morse keys. You have to be extremely lucky to pick up a key that is in mint condition and on sale at a reasonable price, as the majority of keys offered for sale range in condition from near mint to broken and battered relics that are only good for paper weights.

I find a good place to start looking is the Hamads section in this magazine and other similar type magazines. You will find that some operators purchase a key, find it unsuitable to their needs, and sell it, usually at a much reduced price to what they paid for it. Other sources are deceased estates where you are probably buying sight unseen and the description some people give leaves a lot to be desired. Usually, when dealing with these people, I ask them to describe the key to me as best as they can, and then make them a reasonable offer on what I believe the key to be worth. However, some people think that because the key looks old it must be valuable

and try to hang out for higher offers. If you feel this is the key you want and think the price is right, buy it. If not, don't worry, you will pick up the right key eventually.

Second hand shops and junk shops are another good source for keys, although you will have to be prepared to do a lot of walking and searching. It's amazing what you find in old boxes of junk.

Other sources are radio fairs, hamfests and garage sales. Condition plays a major factor in key sales. Happy hunting!

Buying direct from an overseas manufacturer does have its merits with the only drawback being the cost of shipping the article whether by surface mail (around 12 weeks) or the more expensive air mail (anything up to two weeks). If you are lucky, you (or friends) may be able to visit the country of manufacture for other reasons, thus saving yourself quite a bit of cash.

Some of the keys manufactured overseas by skilled craftsmen (especially from Britain and Germany) are magnificent. The workmanship is something to behold, and they feel and operate as well as they look. I have compiled the following list of manufacturers whose keys I have used and believe to be at the top of the market. If you are interested all you have to do is drop them a line with some IRCs enclosed (for return postage) for a current listing of their products.

Britain

Derek Stillwell, Instrument Maker, 27 Lesley Owen Way, Shrewbury, Shropshire, England SY14RP. Makes straight keys only.

G4ZPY Paddle Keys International, 41 Mill Dam Lane, Burscough, Ormskirk, Lanks, England L407TG. Makes a range of straight keys, paddles and iambic keyers.

Germany

Klaus Gramowski, Kaiserin – Augusta – Allee 91, D – 10589 Berlin, Germany.

Makes a range of paddles and hand keys, including a small mobile hand key.

Englmar Wenk DK1WE, Hubenring 4, 88048 Friedrichshafen, Germany. Makes mini hand keys called Twinkey and Minkey.

On a sadder note I've recently been informed that Steve Nurkiewies N2DAN, maker of the Mercury Paddles, died suddenly. Steve will be a great loss to the amateur fraternity.

I intend to compile a listing of all key manufacturers I know and will advise you through this column when completed. If you are interested in obtaining a copy just drop me a line with return postage enclosed and I will send one to you.

PO Box 361, Mona Vale NSW 2103

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WIA News

New Record Claimed for 24 GHz

Distance records for the 24 GHz band tumbled twice in succession over two days in July. Two amateurs in Western Australia now lay claim to a new Australian distance record for the 24 GHz band.

As reported to the Australian VHF-UHF Internet e-mail reflector, on Friday 18 July 1997, **Neil Sandford VK6BHT**, portable at Quinns Beach a suburb north of Perth, worked **Walter Howse VK6KZ**, portable at Falcon, a suburb of Mandurah, south of Perth, on 24 GHz over a distance of 102.7 km. Using SSB, reports each way were 5-4 at 0453 UTC. It was an over-the-sea path with both stations about 10 metres above sea level. This contact exceeded the current Australian distance record of 85 km held by the same operators.

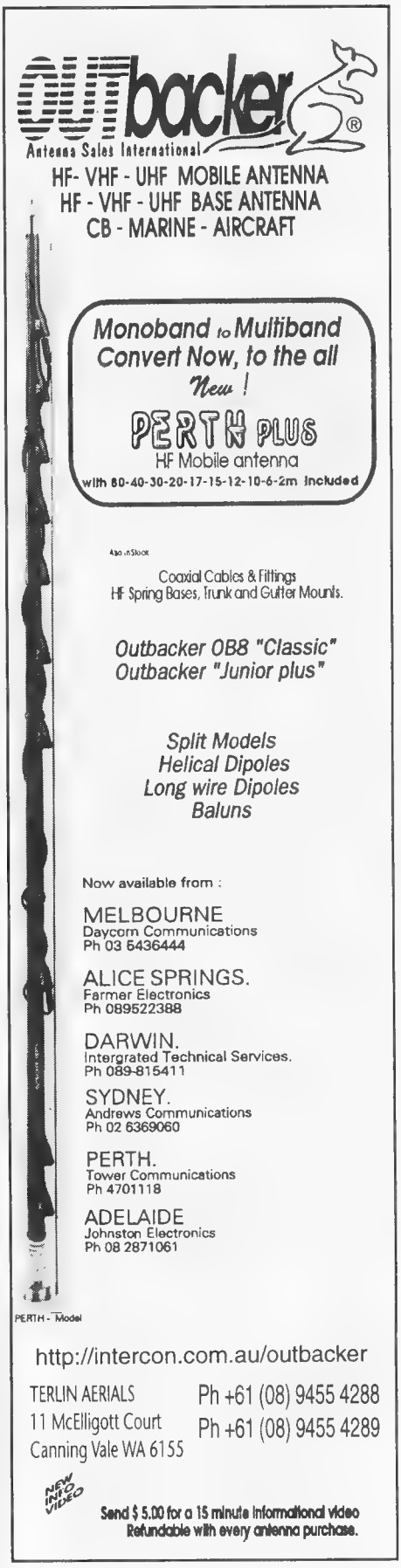
Tests from Two Rocks over a longer path were unsuccessful, although Neil VK6BHT did hear brief snatches of VK6KZ transmissions.

The following morning, with each operator rising at 5 am local time, they ventured to Two Rocks and Falcon hoping for better propagation. At 0037 UTC on 19 July, contact was established with VK6BHT/p at Two Rocks giving VK6KZ/p at Falcon a report of 3-1 (later amended to 4-1) whilst VK6KZ/p gave a 3-1 report. This contact on 24 GHz was also over an ocean path; the distance of 120.6 km will be the basis of a claim for a new Australian distance record.

The current world record is 396 km for a two-way contact and the one-way record about 410 km.

Gear at both ends of the paths was similar, with DB6NT Mark 2 transverters providing noise figures of about 4 dB and power outputs of about 20 mW. Dishes of 570 mm diameter with 'penny' feed were used. Temperatures were 11 degrees and relative humidity 64%, according to Wally House's report. Both operators are looking forward to the summer months, he said!

Wally House VK6KZ is the current WIA Western Australian Division President and Federal Councillor.



QSLs from the WIA Collection

Ken Matchett VK3TL Honorary Curator WIA QSL Collection*

Z-4AA

This QSL, dated 15 November 1924, is one of the treasures of the WIA National QSL Collection. It was sent to an Australian station A2DS by Frank Bell, a pioneer of early amateur radio. It was Frank Bell who, on 19 October 1924 (barely a month before the date of this QSL), made the first two-way contact on amateur frequencies between Great Britain and New Zealand. His English contact was Cecil Goyder G2SZ of Mill Hill, London. On Frank Bell's QSL he also claims to be the first NZ station to contact Australia and the first Australasian station to QSO North America.

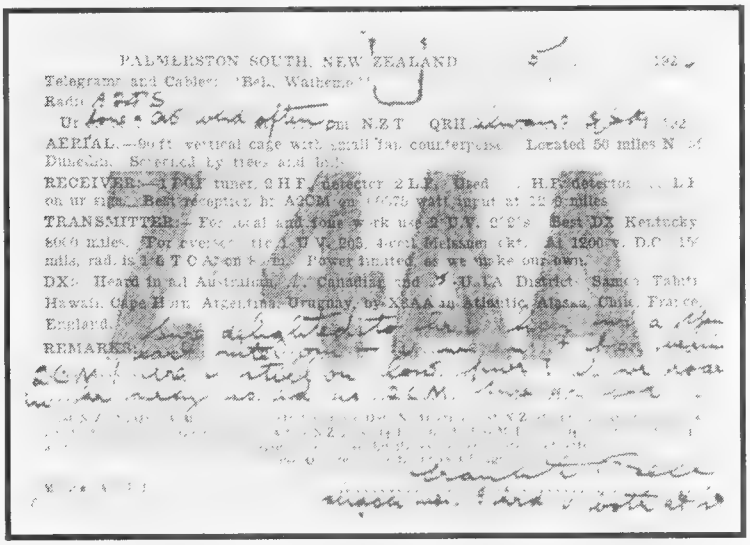
G2SZ

This pre-war QSL, post-marked 13 May 1928, was sent to a short wave listener, Mr L S Bolger of Malvern, Victoria by Cecil W Goyder of Mill Hill, London. The WIA is indeed very fortunate in possessing one of this operator's QSL cards. This card was sent about four years after the operator's historical QSO with New Zealand. On the QSL can be read, *"We were the best station in the old 200 meter* (sic) *test 1923-24* (here he is referring to the series of Trans-Pacific Tests – VK3TL). *This station opened up two-way communication with the Antipodes by working Z4AA, 12,000 miles distant in October 1924, on 90 metres."*

DLOXR

This special DOK "XRAY" was issued by the Club station of the OV Remscheid, Germany (OV = *Ortsverband* or Local Association). The popular German award, DOK, stands for *Distrikts und Ortsverbands-Kenner* (District and Local Identification). In the DOK W32 the W would indicate the district (one of 25) of Germany, and the 32 the particular local radio club. In addition, there have been issued a considerable number of so-called *Sonder DOK* or Special DOKs issued to celebrate special occasions.

The QSL shown was issued by the friends and supporters of the German Roentgen Museum in Remscheid. It was in this town in 1895 that Professor Wilhelm Roentgen discovered X-rays quite by accident whilst experimenting with a Crookes Tube (a vacuum tube through which are directed cathode rays). Some of the energy lost when the rays hit a fluorescent screen was converted into X-rays (so called because of their puzzling nature, particularly their ability to pass through solid matter). Germans still refer to X-rays as *Roentgenstrahlen.*


PALMERSTON SOUTH, NEW ZEALAND

Telegrams and Cables: "Bell, Waitemo"

Radio A2DS

Ur tone 26 wnd after 0m N.Z.T QRH

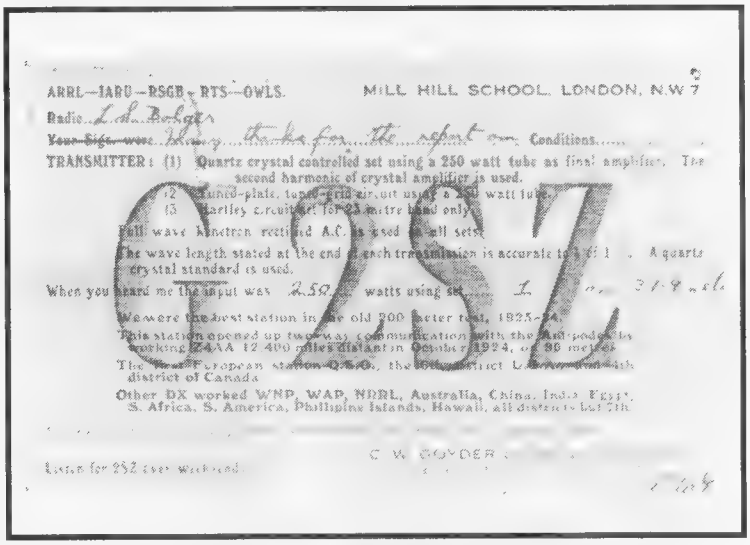
AERIAL.—

RECEIVER:—

TRANSMITTER:—

DX:— Heard in all Australian, Canadian and U.S.A. Districts. Samoa, Tahiti, Hawaii, Cape Horn, Argentina, Uruguay, by X8AA on Atlantic, Alaska, Chile, France, England.

REMARKS:


ARRL—IARU—RSGB—RTS—OWLS. MILL HILL SCHOOL, LONDON, N.W.7

Radio

TRANSMITTER: (1) Quartz crystal controlled set using a 250 watt tube as final amplifier. The second harmonic of crystal amplifier is used.

(2) Tuned-plate, tuned-grid circuit using a 250 watt tube.

(3) Hartley circuit for 23 metre band only.

Full wave kenotron rectified A.C. is used in all sets.

The wave length stated at the end of each transmission is accurate to 1%. A quartz crystal standard is used.

When you heard me the input was 250 watts using set 1.

We were the best station in the old 200 meter test, 1923-24.

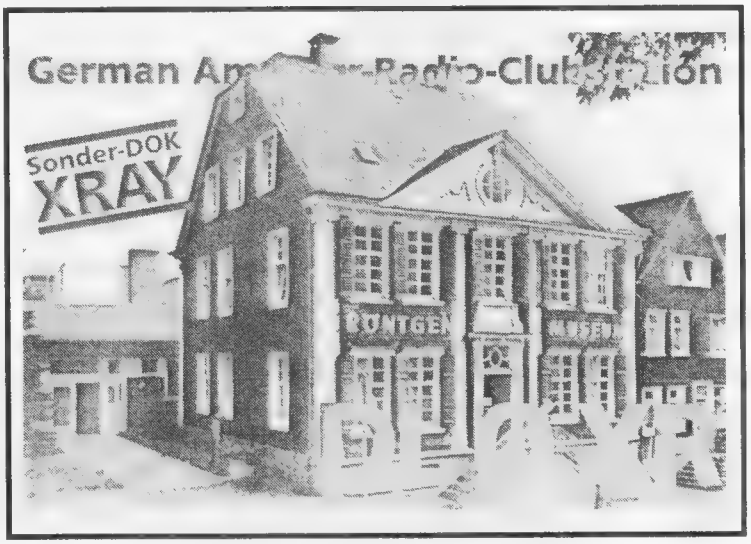
This station opened up two-way communication with the Antipodes by working Z4AA 12,400 miles distant in October 1924, on 90 metres.

The first European station QSO, the 6th district U.S.A. with district of Canada.

Other DX worked WNP, WAP, NDRL, Australia, China, India, Egypt, S. Africa, S. America, Phillipine Islands, Hawaii, all districts U.S.A.

C. W. GOYDER

Listen for 2SZ ever wavelength.



Thanks

The WIA would like to thank the following for their thoughtful donation to the Collection: Leo L20468, Brian VK4LV, Mr Frank McGurgan (courtesy of Gordon VK5KGS), Jim VK1FF, Fred VK4RF, Bill VK4FW, Hans WIA L40370, Gwen VK3DYL and Bert VK3NXQ.

Also the friends and relations of the following Silent Keys: Len "Sandy" Powell (courtesy of Ray VK7RQ) and Bill Sievers VK3CB (courtesy of Alf VK3LC.)

**4 Sunrise Hill Road, Montrose VIC 3765*
Tel (03) 9728 5350

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Repeater Link

*Will McGhie VK6UU**

Cataby Update

Even though this repeater site is in VK6, it could be at any remote location in Australia, and this story could equally apply to any remote amateur repeater site.

You may recall the re-installation of the Cataby repeater VK6RCT in last month's *Repeater Link*. It did not take long for a problem to emerge. The link between the site and Perth developed a fault condition within a few days. There appeared to be a signal opening the mute on the link receiver. The link was shut down and a site visit was planned for the following weekend.

Not Working

The morning of travelling to Cataby required a visit first to the other end of the link between Cataby and Perth, at Roleystone. A minor adjustment was needed on the UHF repeater to which Cataby was linked. On arrival at the site it was discovered the UHF repeater would not transmit! I stood there looking at the UHF repeater not believing my eyes and ears. Yesterday the repeater was working, this morning it would not transmit. I had not tried the repeater on the way to the site as there was no need; it had been working for months without any problems. Why did it choose this very morning not to work? The very day it was needed to sort out the other end of the link at Cataby.

After the initial "the world is mad and I'm part of it" feelings subsided, a closer look at the UHF repeater was required. Most of our repeaters use a particular control board that has had a small problem from time to time. Now you may not believe this, but trust me, it is true. The control board is fitted to about 10 repeaters in VK6 and works well. It is a CMOS design using an EPROM. However, if one of these controllers is left without power for several weeks, it will not work! Placing it in a repeater and applying power results in the controller not performing any of the functions it is required to do, including turning the repeater transmitter on when the repeater mute opens. The fault is "fixed" by turning the power on and off many times, or running your hand over the circuit board. Now those of you who think this is a bit of black magic may well be right. But trust me, this fixes the "no work" condition. This happens with any board left without power for several weeks, so it is not a dry joint, etc.

Knowing this could be the problem, I turned the power on and off on the UHF repeater several times. Still no go. Next I ran my hand over the circuit board. Still no go. However, further black magic by running my hand over the circuit board resulted in the repeater working. Why had the circuit board failed in the manner others had (no power applied for several weeks)? This board was powered up. There was one other variable in all this, and that was Perth's record low temperatures. That particular morning the temperature had dropped to a record zero degrees, cold for Perth. Could this strange fault not only be caused by a lengthy lack of power to the controller, but also low temperatures?

There was no time to sort it out now as Cataby is over two hours drive away. At least the UHF repeater was working and available for testing of the link to Cataby. Just to be sure the UHF repeater control board did not fail again, if it was due to the low temperature, I left a small soldering iron under the repeater to raise the temperature a little, and headed off North to Cataby.

What luck though, having to go to the Perth site. I might not have tried the UHF repeater until I was well on my way to Cataby.

Instability

Arrival at Cataby showed the fault on the link receiver to be a signal all right. The S meter showed a 5 µV signal. It was within the receiver. Eventually it was tracked down to an unstable 455 kHz IF. Some extra bypassing on the 10 volt supply rail right at the IF amplifier sorted out the receiver which is a Philips FM747. The board had been removed from its mobile container and mounted in a rack mounting box. The different mounting location perhaps caused the problem, as FM747s do not have this problem to my knowledge. However, if you look at the supply rail that feeds the IF amplifier, you will notice a long track that is not bypassed right at the IF amplifier.

MAR-6

With the instability fixed, the link now functioned again. The signal strength over this link path from Perth to Cataby is only about a microvolt under normal propagation conditions. The distance is 165 kilometres, but the location of Cataby is only about 100 metres above the average terrain, resulting in the poor link path. The FM747 receiver is not particularly sensitive, so I had made up a UHF pre-amplifier for installation in the link receiver. An interesting design was tried using a monolithic amplifier, the MAR-6. For those of you not familiar with the MAR-6, they are simple in design. The amplifiers are 50 ohm in 50 ohm out. Most designs you see show the MAR-6 used as a broadband, untuned amplifier. I added a tuned circuit at the input and output. With a noise figure of around 3 dB, the MAR-6 amplifier improved the FM747 receiver by about 6 dB. Next month's *Repeater Link*, time permitting, will feature the MAR-6 design.

Good News

With so much bad news on the repeater scene over the past few years in regard to licence conditions, new regulations delays, and rising costs, it is a great pleasure to comment on some good news. As you should be aware, the ACA (SMA) changed repeater and beacon licence cost conditions well over a year ago. This resulted in many repeater site licence costs increasing two or three times. Added to this, a very big increase in new or changing licences would have resulted in the demise of many repeaters and beacons. In fact, some repeater and beacon licences were cancelled or placed under limited operation in VK6 due to the cost increases. It was not just the possibility of change, change had already taken place due to the licence changes. Changes that had not had a consultation process beforehand with the WIA. The changes were just announced by the then SMA.

It's a great relief to see that the licence cost structure has been changed. As of now, a repeater, beacon or digipeater licence will cost $50; and, if more than one system shares the same site and callsign, the total cost is still just $50. Beacons and repeaters, however, cannot share the same callsign, and hence must be licensed separately, each incurring a $50 fee.

What is even more pleasing is that the investigation fee has been reduced to $30 for new or existing licences. Any new licence, or change to an existing licence, is now $30; and this $30 is a flat $30, with no additional time cost. Also, all work to convert existing repeater or beacon licences will be done free of charge by the ACA (SMA).

Well done to the WIA and all amateurs who opposed the fee rises; and well done to the ACA (SMA) who structured the changes. It is disappointing that the original changes took place. It cost amateur radio time and money. Can we recover licence costs that have been paid under the past system? I believe we can. It depends on whether it is to our overall benefit to do so, and if we have the resolve to do so.

ACA Internet Site

The ACA (SMA) have an Internet site at http://www.sma.gov.au/ (by the time you read this the sma may have changed to aca). There is a lot of information on the site and well worth the visit. I did notice some of the information relating to repeaters to be incorrect, as it is now outdated. Regulations only permitting a maximum of three repeaters to be linked hopefully will be corrected. Have a look at the site if you have Internet access. By the way there is also a link from the VK6 WIA Home Page at http://www.faroc.com.au/~vk6wia/.

**21 Waterloo Crescent, Lesmurdie 6076*
Packet: VK6UU @ VK6BBR
E-mail: will@vale.faroc.com.au

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Spotlight on SWLing

*Robin L Harwood VK7RH**

I have now seen the revised schedule for Radio Australia, following the severe budgetary cutbacks experienced as from 1 July. As reported here and elsewhere, the site near Darwin has been mothballed leaving only the Shepparton (VIC) and Brandon (QLD) senders to carry RA's programming to Asia and the Pacific. As one would expect, signal levels are markedly down with Shepparton only having outmoded 100 kW senders and those at Brandon even older and only rated at 10 kW. Darwin had several 250 kW senders and was easily heard in SE Asia and beyond. Budgets have been pruned for programming and for transmission time and the staff has been reduced from 144 to 67.

Since the implementation of these radical changes, I have found it very difficult to even hear them, even though I am only 300+ miles from their main senders. I know that several listeners overseas are upset that they cannot hear RA as easily as before. I know that the weekend sporting panel with descriptions was utilised by many listeners but they have had difficulties finding it amongst the other short-wave powerhouses. Will RA eventually return to its former levels? It is hard to say. The external television service was also privatised and is now owned by the Seven Network, although the ABC still retains the independent news and current affairs segments.

I am now hearing the Voice of Greece in the early evenings in Greek and ending with a 10 minute English news bulletin. However, it is coming from Delano, California as part of a reciprocal agreement for the VOA to continue using their senders in Greece. Frequency is 9775 kHz between 0600 and 0950 UTC. Athens comes in well on 9425 kHz from 0400 UTC from transmitters in Greece.

There was a short-lived broadcast from "Radio Emerald" and, as you would expect, it was from Eire. It was via WWCR and was not associated with the official RTE organisation which also uses WWCR at other times. These programs were produced by students at a technical college. However, DXers balked at the asking fee of $US5 for a QSL card. The same outfit also had a web-site with Real Audio.

There have been moves to get a consensus amongst the various Australian DX clubs. All clubs have experienced plummeting membership reflecting the rapid world-wide decline in short-wave listening. One Club did peak at 600 yet only 10% now remain as members. A conference was due to be held in Melbourne on 10 August, facilitated by the Electronic DX Press (Bob Padula), to discuss the future of the hobby in Australia. It is too early to say what outcomes will emerge but I am expecting that an organisation could be established based on the Internet for the pooling and sharing of resources in the hobby.

Talking of the Internet, the Newcastle Scanner Group, via Martin Howells VK2TJO, has announced that they have a web-site. It is at *http://www.swl.net/nsg*. E-mail enquiries go to *nsg@swl.net* or *nsg@hunterlink.net.au*.

The end of September usually is the end of the European summer when clocks are wound back and seasonal alterations are made. However, a decision was made last year to changeover at the end of October. Broadcasts to non-European targets are likely to be altered on the first Sunday in September from 0100 UTC.

Please delete my packet address as I rarely use it these days. Personally I prefer the Internet as it is fast and reliable compared to packet. Mail from HB9 was sent via packet and I haven't received it yet. E-mail copies of the identical traffic were here within minutes of being sent. I am wondering how much longer packet will be around.

Well that is all for this month. Until next time, good listening!

**5 Helen Street, Newstead TAS 7250 (03) 63 44 2324*
Internet e-mail: robroy@tassie.net.au

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WIA News

WIA Member Morse Survey

Returns from the June survey of WIA members' opinions on whether the requirement for Morse qualification in amateur licensing should be retained in the International Radio Regulations as a treaty requirement, or be left up to each country's administration, have been preliminarily assessed, with some interesting results.

With more than 1600 surveys returned, members voted 2:1 in favour of maintaining it in the International Radio Regulations. Seven members expressed no opinion either way, as was provided for on the survey form circulated with the June issue of *Amateur Radio* magazine. Detailed breakdowns on voting by licence type, and other statistics, were not available at deadline time.

The survey's purpose was to provide an updated assessment of opinion since the member survey on the same subject conducted more than a year ago. The issue is on the agenda for the International Amateur Radio Union (IARU) Region 3 Conference being held in Beijing over 8-12 September and the WIA delegation to the Conference needed an assessment to provide guidance as to the feeling of WIA members on the issue.

The matter was discussed at the IARU Region 1 meeting in Tel Aviv last year.

The retention of the Morse requirement in the Radio Regulations of the International Telecommunications Union (ITU) is an issue which is anticipated to be among a variety of amateur radio matters on the agenda for the ITU's World Radio Conference in 1999 (WRC-99).

The Morse issue is, however, only one of eight raised by the IARU's "Future of the Amateur Service Committee" (FASC). The eight issues dealing with the International Radio Regulations are:

- definition of the amateur service,
- international communication between different countries,
- international communications message content,
- international communications third party traffic,
- Morse code,
- examination standards,
- power levels and spurious emissions, and
- definition of the amateur-satellite service.

As can be appreciated from the foregoing, the issues are not simple and are interrelated. The WIA originally publicised the IARU's initiative in 1995, and the FASC's later publications in 1996, and sought comment from the Australian amateur community. The FASC's original Discussion Paper, their First Report and Second Report are available from the IARU's Web site at *www.iaru.org*. If you haven't got Internet access, ask for copies from your local WIA Division.

[Released 11/8/97]

VHF/UHF – An Expanding World

*Eric Jamieson VK5LP**

All times are UTC.

Six Metres of 50 Years Ago (Part 2)

Frequency allocations to Australian amateurs for five/six metres have varied over the years. The following is a brief summary.

Pre World War II:	56 to 60 MHz
01/01/46 to 30/12/63:	50 to 54 MHz*
01/01/64 to 30/06/89:	52 to 54 MHz
From 01/07/89:	read on.

* With the introduction of Channel 0 television transmitters to VK2, 3 and 4, plus the expansion from an 11 channel TV band to 13 channels, which included Channels 0 and 5A (these were completely at odds with the rest of the world but Australia seems to have a habit of doing strange things at times) at the end of 1963 we were limited to 52 to 54 MHz until 30/6/89 when portions of the band from 50.000 MHz were again available, on a non-interference basis to Channel 0 television stations.

Six News, the UK Six Metre Group Newsletter of October 1991, provides further insight into the establishment of six metres in an article *The History of Six* compiled by Neil Carr G0JHC from Harry School's (KA3B) *Six Metre Digest 1987*, also from an article by Brian Bower G3COJ for the UK Six Metre Group. Excerpts are worthy of inclusion on this occasion, permission having been established.

It appears that a conference in Washington DC in 1927 made a world-wide allocation of 50 to 60 MHz. The distance record for 56 MHz (five metres) was 2500 miles established by a contact between W1EYM and W6DNS on 22 July 1938. On 56 MHz, G5BY was the first station to span the Atlantic when heard by W2HXD on 27 December 1936, which period would have been during the peak of Cycle 17. G5BY and GM6RG were each heard in the USA in 1938. At the Cairo WARC of 1939, the allocation was reduced to 58.5 to 60 MHz to make way for Band 1 television. At the 1947 WARC, amateurs in Europe were no longer permitted to operate between 29.700 and 144 MHz, while Oceania received 50 to 56 MHz.

"The band 50 to 54 MHz became available to amateurs in the USA from 1 March 1946, with the first aurora/Es contact between W1LSN and W9DWU on 23 April 1946 at a distance of 1100 miles. This was extended to 2590 miles on 14 June 1946 by a contact between W6OVK and W2BYM, becoming a new six metre record. The same afternoon a contact between W1LLL and W6NAW became the second trans-continental QSO.

"By September 1946 there was considerable six metre activity in the US and Canada. VK stations on six metres were appearing in all states, and New Zealand.

"During June and July of 1946, each Sunday from 1300 UTC, G5BY made automatic CW transmissions on 58.632 MHz using high gain antennas beamed at the US, from a site situated on a 400 foot cliff overlooking the sea.

"For transmitting G5BY used two 4 element W6QLZ arrays stacked vertically and fed in phase. For receiving he used a rhombic, 240 feet on each leg.

"In September 1946 F2 skip began to appear and during a 27 day recurrence cycle in late October, American FM stations near 45 MHz were heard in England.

"Anticipating a peak in the F2 season to take place in November 1946, G6DH Dennis Heightman of Clacton-on-sea, Essex, England, suggested a series of daily schedules with W1HDQ on 28 MHz. These schedules started on November 13th and took place each morning at 8.15 am EST.

"On several days signals were heard on both sides of the path on frequencies as high as 48 MHz. Test after test was made on 50.002.3 MHz with no results. On Sunday morning, November 24th signals in the 47-48 MHz range were heard on both sides of the Atlantic. Many of them were S9 and higher. Arrangements were made whereby W1HDQ would transmit for 5 minute periods each 15 minutes, listening on 28 MHz for replies from G6DH.

"The first transmission was made at 11.15 am in the form of a QST on voice to all 50 MHz stations, to the effect that an opening across the Atlantic was imminent, and urging all stations to get on and transmit. The QST was continued for 4 minutes, followed by a 1 minute call to G6DH. G6DH heard W1HDQ and the first transatlantic VHF QSO was on. (A VHF 2-way was attempted on 5 metres to 6 metres but the MUF didn't go quite high enough to permit G5BY to make it on 58.632 MHz with W1BEQ in Connecticut.) W1HDQs signal faded out at 12.00 pm (43 minutes later) at G6DH and at 12.25 pm with G5BY, Hilton O'Heffernan. Although G5BY intercepted W1HDQs signal first, it was G6DH who made the first contact."

Next month the above article continues with a segment called *1947 – The Year of Firsts*, and hopefully space for the first part of a series covering interesting aspects of VK six metre operating during the period from 1946 to 1950.

In addition, with assistance from a number of our senior VK5 amateurs, I am assembling information on the 5 metre band in the period before World War II. I think you will like reading about that article when it appears in print.

As a result, I would welcome input from **any** amateurs who operated on five metres before the War. Information I could use would include a list or photocopy of log entries of the time, also receivers, transmitters and antennas used, plus any relevant snippets or jottings made in your log at the time; a photo of yourself too, if available.

Newsworthy Items

Andrew Davis VK1DA reports: *"That since the upgrade to antennas at VK3RGL/b, Chris VK1DO hears the beacon better. Even I have heard it. On 24/7 at 2000 I was copying the callsign at 219; that's good as I have only a single 10 el DL6WU Yagi at 20 ft (on the roof) fed with ordinary coax into a IC271H with no pre-amp and SSB bandwidth. My lookout to VK3 is reasonable."*

Ron Cook VK3AFW writes: *"I've often read about the northern hemisphere's winter Es season but did not know if it existed down south. Well, it does. Several stations have been making 6 m Es contacts in June for many years. On 28/6, Gavin VK3HY worked VK4WPN. Gavin and Andrew VK7XR, and others, have also heard lots of ZL TV, but no ZLs.*

"Using aircraft enhancement, on 21/6 I worked a new VK1 call, Reg VK1MP. On 5/7 Felix VK3CAD, at Eildon for the first time. His QTH is in a deep valley and very little signal makes it to Melbourne without assistance. Also heard calling were VK3ANJ, 3DUQ, 3TMP, 3HY, 3II, 3JG. VK1DO and VK2TWR are still regulars on the net. Gordon VK2ZAB is believed to be having TVI problems and has not been heard lately. VK1BUC and VK1RX appear with good signals from time to time.

"Norm VK3DUT reports working a number of ZLs on six metres over the last month. His present QTH at Lakes Entrance is 200 km closer than the old one and that seems to make a lot of difference to the number and strength of signals from ZL.

"The large high pressure system in The Bight has brought some enhanced propagation, in spite of the lower winter temperatures. At various times from 19/7, for a week or more, there were the following occurrences:

"Rod VK2TWR copied the VK7 2 m and 70 cm beacons near Devonport, but Andrew VK7XR, south of Devonport, was away. VK3AFW worked Andrew VK7XR, on 2 m 5x8, and on 70 cm 5x1. Distance about 440 km. Des VK3CY at Wedderburn, Central Victoria, also worked Andrew on 2 m 5x3 and again on 1/8 at 5x2. Distance about 550 km. Andrew cannot hear the VK3RGL/b since the antenna direction has been changed.

"Barry VK3TBM, has been mobile on 2 m SSB around Melbourne and the nearby country areas. Running 25 W to a halo he has worked in excess of 120 km while mobile. Max VK3TMP, inspired by this, has now built a halo for his vehicle and worked Des VK3CY over 230 km on 2 m SSB. Try that on 2 m FM simplex! Others using mobile are David VK3AUU, Max VK3TMP and Felix VK3CAD.

"Graeme VK3GRL at Narre Warren has a respectable signal from an 11 element Yagi and 25 watts.

"Aircraft enhancement net on 144.200: Peter VK1RX, worked VK3s AFW, KLO, AJN. Also heard in Melbourne, VK1MP, VK2TWR, VK3s HY, TMP, DUQ, ZXR, JG.

"On a lighter note, Andrew VK7XR has pointed out that we have, over six years, completed QSOs most days of the week on 2 m CW. I figure that is more than 1200 2 m CW QSOs! As the distance is more than 400 km, it appears we've worked over 500,000 km on 2 m. Hmmm, is that a record?"

Barry Miller VK3TBM in his first report to me advises: *"On 20/7 I travelled to a hill just outside Maryborough, in Central Victoria. I carried some two metre gear, a halo for mobile work, and a 5 el NBS Yagi for portable operation.*

"On the way from my QTH in Box Hill South, at 2254 I worked Gavin VK3HY, and had a lengthy contact with Ron VK3AFW from 2304. Initial contact with Ron was made at Bacchus Marsh, on the Western Freeway, and continued with good signals till after I left the freeway at Bungaree, and was 10 km SE of Creswick. Signals varied from 5x9+40 to 5x1. Two further brief contacts were made with Ron; 2352 at Clunes 5x1, and 0020 at Maryborough 5x1.

"Mobile set-up consists of a halo mounted centrally above a roof rack, with an FT-290R MK1 driving a 30 watt amplifier (MRF-240 transistor).

"Using the portable antenna, nothing much was heard until 0635, when Rod VK3DQJ near Lancefield answered a call with signals 5x9.

"On the outskirts of Melbourne, while returning home, I worked John VK3ACA, at Oak Park; signals averaging 5x5.

"Planning and preparing for plenty of portable operations later this year. I'll let you know details of these further down the track."

Nev VK2QF at Hargraves NSW has almost completed an upgrade of his six metre station, in readiness for Cycle 23.

The antenna is an eight element optimised Yagi with chrome steel boom, copper driven element and coaxial gamma feed. Gain is quoted as 15 dB and he has measured a 35 dB front to back ratio, so it should work well. Despite the steel it weighs less than 20 kg, which is reasonable for a 9 m boom. Feedline is Times Microwave LMR 600 coax with a nominal OD of 16 mm and very low loss.

All is mounted on a 24 m KVC Southern Cross free-standing tower, held in place with 16 tonnes of steel, concrete and soil. The coax is fully enclosed in conduit. Transceiver is the faithful Kenwood TS600.

Nev said his location leaves much to be desired, with towering hills much closer than before, but he believes F2 propagation will find its way into difficult sites.

Joe Gelston VK7JG writes: *"On 9/2/1986 during a large auroral opening I worked David VK3AUU on 432 with 3-2 3-4 reports exchanged; I believe this to possibly be the first contact on this band for VK using that mode. I also worked four VK3s and three VK5s as well on two metres. I was running a 8874 to an 88 element Jaybeam with a mast head pre-amp.*

"I have now completed a VK4OE design solid state 1296 power amp using 4 x 25 watt power modules; this, combined with a LNA of 0.22 dB noise figure, should be ready for the next DX season. I will be using a single 27 el Loop Yagi at the top of the tower at about 50 feet."

On 10/7 at 1340, **Bill VK6AS** in Esperance, for the first time heard his moon echoes on 144 MHz. Wal VK6KZ said that he was "over the moon" literally after hearing those echoes for about 10-15 minutes. He will keep trying for more echoes and may move to set up some skeds.

Graham VK6RO advises that for 14 minutes on 12/7 at 0413 on 57.250 MHz, he received Channel 1 from Port Pirie at S9. He called on 50.110 CW but received no replies. Part of winter Es?

Steve VK3OT reports that on 20/7 via mid-winter Es from ZL, 45.2502 video and 50.750 sound. At 0645 the sound rose to S9 with full quieting; called on 50 MHz but no replies. VK3SIX to ZL3TIC 0430 50.125 Sunday 13/07/97 at 5x5.

Steve said that, as part of his 1998 travel arrangements, he plans to visit KL7 in BP51 and, hopefully, operate from there during Dec/Jan/Feb. Arrival date in Wasilla, Alaska is 27 December. Also to operate from HL9 in Feb 1998. To be confirmed later.

Stuart YJ8UU has moved to Vanuatu and will be on six metres after 19/7. Six metre activity is scheduled for 0630 on 50.110 MHz. He will be there for three years. QSL via ZL2HE.

The Geelong Beacon

Dale Cavies VK5AFO at Mount Barker has been checking for the beacon on 144.530. He heard it positively for the first time at 1200 on 31/7 at S1. That's a start.

The beacon continues to be available to VK5LP at Meningie on a daily basis; whenever I have checked it has been audible, with signals varying between S1 and S5.

Microwave News

Wal VK6KZ reports that on 18/7/97, Neil Sandford VK6BHT/p at Quinns Beach (suburb north of Perth) worked Walter Howse VK6KZ/p at Falcon (suburb of Mandurah south of Perth) on 24 GHz over a distance of 96.7 km with SSB reports each way of 5x4 at 0453. This was over a sea path. This contact exceeded the current Australian distance record of 85 km. Tests from Two Rocks over a longer path were unsuccessful, although Neil did hear brief snatches of VK6KZ transmissions.

The following morning (with a 5 am local time rising) each ventured to Two Rocks and Falcon hoping for better propagation. At 0037 on 19/7 contact was established with VK6BHT/p at Two Rocks giving VK6KZ/p at Falcon a report of 3x1 (later amended to 4x1) whilst VK6KZ/p gave a 3x1 report. This contact on 24 GHz over an ocean path of 120.6 km will be the basis of a claim for a new Australian distance record.

Gear at both ends of the path has not changed from the previous contacts with approx 20 mW and 600 mm dishes.

[Readers: wait for some special microwave reports next month. ... VK5LP]

Melbourne 70 cm Beacon

Ian Glanville VK3AQU advises the following: *"For many years I have run the Melbourne 70 cm beacon. Recent efforts, in conjunction with John Martin VK3KWA, to relocate it out of Melbourne and shift its frequency to conform with the band plan have run into a number of difficulties, mostly in regard to finding it a new home. Consequently, I am seriously considering closing it down. I'm sure you'll agree this would be a sad loss to the hobby.*

"What I am proposing is that if any club (preferably), or individual who is interested in taking over my beacon can have it completely free of cost provided they do so on the understanding that it is to be returned to service.

"Any interested party can contact me via packet @VK3EEE, QTHR or via this e-mail

address: lorian@albury.net.au (Ian Glanville)."

So now it is over to the VK3 amateur fraternity to do something about it.

Internet Six News

Geoff GJ4ICD in his *Internet Six News* provides the following:

From 10/7/97 radio amateurs of Ukraine can use the 6 m band (50.080-50.280 MHz), 10 watts out, CW and SSB only, exception is for areas with TV Ch1 broadcasting. There are more than 14,000 amateur stations in Ukraine and it is good ground for future high activity.

After a quiet period, on 9/7 a dramatic increase of X-ray flux levels occurred. 10/7 saw the best Es of the year with an opening most of the day to VE/W on 50 MHz. VO1ZA/b was heard for over four hours in Europe. W1/2/3 and VE were still being worked at 1630.

There was also an opening at 1200 on 144 MHz from G/GJ to LY/SM0/3/4/5. We are trying to plot 1996 against 1997 X-ray and other characteristics which we now have access to on the Internet and will bring you more news later. ... de GJ4ICD.

Ken SM7CMV reported that on 10/7 there were 38 countries into Sweden on one day – rather unusual for him with "normal" equipment (20 watts to 5 el). The countries were: YM7PA, I, LZ, Z3, OE, SV, YU, DL, IS0, 9H, HB9, EH, OK, OM, 9A, S5, YO, ER, YL, ES, PA, F, G, GW, GJ, GM, GI; SP; OH, VE, W; LA, TF, ON, OZ, OY, SM.

12/7: **Doug VE1PZ** had 51 contacts with 15 countries in Europe. They were HB9, F, I, OE, S5, OZ, SP, SM, DL, OK, CT, CT3, G, GJ and CU, between 1110 and 1419.

17/7: **WA1OUB** reports that this season so far has produced 111 transatlantic QSOs with the longest to YU1EU at 4355 miles.

29/7: **Neil G0JHC** provides the following F2 Cycle news: *"My first F2 QSO (not TE/ES link-up) of Cycle 22 came on 11 December 1988, at month 28 of the cycle. According to NOAA Cycle 23 began May 1996, month 28 takes us to August next year (1998), allowing for month 28 occurring in the summer time. The autumn/fall of 1998 might just see the first signs of things picking up? However, Cycle 22 did start with a smoothed sunspot number of 12.2, whereas Cycle 23 started at 8.1, the last smoothed SSN data (December 1996) was 10.6, still somewhat behind the start figure for Cycle 22. I have no idea if the experts read anything into SSN cycle start figures being directly proportional to cycle peaks, does anyone else know?"*

DXCC via Es/Tropo on 50 MHz?

Could it ever be completed? **Neil G0JHC** pointed out some interesting statistics on 50 MHz. During the past ten years he has worked a total of 89 countries via Es. This does not include any stations further south than 5T5, so TEP/Es modes can be ruled out.

Geoff GJ4ICD looked into what had actually been worked in Europe/GJ including the ones he worked and missed over the past ten years and came out with the following data via Es/Tropo.

"In Europe, 63 countries, nine countries in Asia, nine countries in Africa, (none lower than 5T5), 13 countries in the USA/Caribbean, and one country in South America, a total of 95 Countries via Es/Tropo only. Add to this JW/CY9/5A which have been worked in Europe via Es now brings the total to 98, add 4U1UN which would be easy if QRV in the summer months and CO2 which should also be easy to work and there it is! DXCC via Es/Tropo in Europe. It can be done!"

31/7: **Will AA6DD** in his interview on *Ham Radio & More* concluded that he has current proof that Cycle 23 will be a bumper cycle! Will has examined cycles going back and found a pattern between them; we hope to bring you this exciting news later.

Massive 144 MHz tropo opening: On 7/7 W6s in California started to report the KH6 beacon in Hawaii; later in the day many W6s actually worked KH6 on the band, followed by an opening on 432 MHz!

Ted Collins G4UPS during June noted reception of 24 beacons and four keyers.

From his location, the first contact "across the pond" was on 11 June to VE1PZ. Ted had Es contacts on every day in June. His log record occupies 11 A4 pages of closely written text! His operating day begins from as early as 0530 (his local time which, for the purposes of this report, is the same as if VK stations commenced at the same time), and concludes as late as 2140 on some days. A very long day indeed. The reward of course is the working of 40 or more countries during the month.

Ted's log makes fascinating reading. I wish I had the space to show readers the dedication he gives to the band and the meticulous details that he keeps of each day's activities.

From the USA

Emil Pocock W3EP writing in *The World Above 50 MHz* for September *QST*, notes the following regarding 50 MHz transatlantic contacts: *"Perhaps we have been spoiled the past three years. In 1994, 1995, and 1996, there were an average of 13 days with sporadic-E propagation to Europe from the US and Canada during June. Even during the 14 years from 1980 to 1993, there were at least two or three such openings reported each June. This year, there was not a single 6 metre contact from the US to Europe during the month!*

"There were some tantalising indications though. Six-metre operators from the Maritimes into the Carolinas (including VE1PZ, VE9AA, K1TOL, WA1OUB, W1RA, W3EP/1, W3BO, WB4WTC, and others) heard Spanish 48.25 MHz TV video on many mornings. On a few rare days, video was accompanied by other encouraging signs, such as the VO1ZA and CU3URA beacons. WA1OUB heard a Spanish 6 metre beacon briefly on June 6. That was it for the month from the US!

"Conditions were somewhat more favourable from Nova Scotia. Even so, VE1PZ (FN85) and VE1ZZ (FN74) made the only transatlantic contacts from mainland North America during the month. VE1PZ's initial European contact was with OK2BGW on June 8, snagged on a CQ! The best of Doug's five openings came on June 11, when he ran off 37 Europeans with very loud signals both ways. J6/W6JKV made the only other reported transatlantic contacts on June 24, 25, and 28.

"Japanese 6 metre operators continue to work the likes of BV, VR2, DU, and HL. In June, they added JD1BJP, KH2D, 9M2TO, UAOCQ and UAOZBK to their logs. T88JZ on Palau, operated by JE7RJZ, perhaps caused the most excitement. On June 1, he made nearly 900 contacts in Japan – all by two and three sporadic-E hops. The distances are equivalent to those between North America and Europe. (Thanks to JA1VOK.)"

Closure

September is the start of the equinox and this may lead to extended contacts, particularly on six metres.

Please note that my Fax number has changed to 08 8575 1043.

Closing with two thoughts for the month:

1. If you pay as you go these days, you may not have enough left to get back, and

2. Maybe it is better to trust the man who is frequently in error than the one who is never in doubt.

73 from The Voice by the Lake.
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E-mail: vk5lp@ozemail.com.au

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Amateur radio – helping our community

Silent Keys

Due to space demands obituaries should be no longer than 200 words.

L W (LEN)	ADAMS	L20485
E E	HAYLES	VK2AHY
S J (STAN)	PARR	VK2ASP
R	BURTON	VK2EJE
J I (JEANETTE)	WILEY	VK2EJW
B	FALKENBERG	VK3FA
R (BOB)	WILSON	VK4IT
D E	WILTON	VK5KDW
E C	MACHIN	VK6VM

Maxwell Emanuel (Mannie) Austin VK2KZ

Mannie passed away on 13 June 1997 at age 88. He had held his amateur radio licence, certificate No 477, since February 1929.

He was born and lived in the same house in Kurri Kurri for 83 years, and this was where he spent all of his active radio days.

Mannie was a very enthusiastic radio amateur. He was zone correspondent for our amateur radio magazine and wrote several articles on improving equipment in the pre-war years. He was an executive member of the Kurri Kurri Radio club; a keen DXer who built all his own equipment, including antennas and was able to QSO every state in the USA on 10 m with a modest 25 watts; he was admired for his CW sending; he was a member of the Old Timers Club; and he received many certificates for his efforts in amateur radio.

Mannie was a good community man. He obtained his instructors certificate in 1940 with the St John Ambulance Association and received "Distinguished Service" mentions in the minutes of the NSW Executive Committee in 1952, 1960 and 1980.

He married Doris (now deceased) and had two sons, Max and Ron, who made him a proud grandfather.

With failing health, he moved to Budgewoi in 1992 to live with Max's family, but died in the Henry Kendall Nursing Home.

Farewell, Max. You were a great guy.

Bill Hall VK2XT

Arthur Harris VK2FFH

Arthur passed away on 28 February 1997 just a short time before the commencement of the Friday night Fishers Ghost ARC weekly 80 metre net. He was a life member of the Fishers Ghost club and the Friday night net was probably the one Arthur was best known for. He often used the phonetics Freddie Fishers Helper for his callsign.

Most of us will best remember Arthur as one of our first contacts on the 80 metre band where he welcomed us to the air waves and guided us through the protocol of working awards and how to conduct ourselves on nets generally. He was a mentor to many of us and his warm and friendly manner in helping us as newcomers was the very basis of his character.

Most nights of the week Arthur could be found between 3.550 and 3.625 MHz on one or other of the regular weekly nets. Frequently he would venture up the band to 3.677 MHz to join his many ZL friends on the New Zealand Counties Net. He was an avid award chaser and was quite proud of the numerous folders he had containing award certificates.

On behalf of all his many friends in amateur radio may I say how grateful we are to have had Arthur as a friend and colleague and one who we now sincerely miss as a result of his passing. To Biddy and her family we extend our sincere condolences. May he rest in peace.

Kevin Mulcahy VK2CE
Port Macquarie NSW.
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Update

Intermodulation Performance and Measurement of Intermodulation Components

(Published in the August 1997 issue of Amateur Radio magazine, commencing on page 6)

In Fig 6 – Circuit diagram (simplified version) of the VK5BR 50 ohm attenuator, the strap between the two sections of the switch bank was inadvertently omitted (see Fig 1 for the amended circuit part).

Also, although the formula shown in Fig 11, and in the text near the bottom of column two on page 12, is correct, expressed as a percentage it should have included a multiplying factor of 100, eg % Intermod = 100(a-b)/2(a+b).

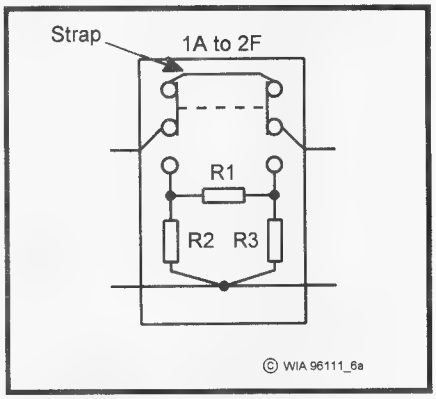

Fig 1 – Amended switch circuit for Fig 6 on page 9 of August 1997 *Amateur Radio*.

Simple Peak-Reading Watt-Meter

(Published in the August 1997 issue of Amateur Radio magazine, commencing on page 13)

The PEP formula near the foot of column two on page 13 should have showed that the (Vp*0.707) part of the formula was squared, eg:

$PEP = (V_p*0.707)^2/50 = 64$ watts.

Novice Notes

(Published in the August 1997 issue of Amateur Radio magazine, commencing on page 39)

The second of the diagrams appearing on page 40 and labelled "Fig 3a" should be "Fig 2b".

It might be a good idea to make the above corrections to your copy of the August 1997 issue of *Amateur Radio* NOW!

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Remember to leave a three second break between overs when using a repeater

WIA News

Ham Astronaut Calls Houston After Space Prang

Astronaut Mike Foale KB5UAC, aboard the Russian MIR space station when it had a mishap during docking practice in late June, spoke to fellow American astronauts at the Johnson Space Centre in Houston, Texas, within hours of the event using the amateur radio station on board MIR.

Foale spoke to astronauts at the Johnson Space Centre ham radio station, W5RRR. The room was packed, according to fellow astronaut and amateur, Matt Bordelon. He said ninety per cent of those in the room at the time were also ham-licensed astronauts.

As the MIR space station came over the horizon on its orbit the morning of the mishap, nobody knew if Mike Foale would come on, with power cut by half and all nonessential equipment turned off. Before they had a chance to call up to the stricken space station, Foale called them. The room heaved a collective sigh of relief, according to the report in the *ARRL Letter* issued the week after the event.

Group chairman of the Houston-based Shuttle Amateur Radio Experiment (SAREX), Roy Neal K6DUE, said that ham radio had again proved an invaluable aid to health and welfare during a critical time.

Speaking at the world-televised NASA press briefing immediately after the MIR crisis, fellow American astronaut, Jerry Linenger KC5HBR, who had spent four months aboard the MIR space station immediately before Foale, who had replaced him, said it was premature to comment on what this latest incident may mean for MIR's future. The 11 year-old craft has already outlived by six years its anticipated five-year life.

During his stay aboard MIR earlier this year, Linenger and the Russian crew had experienced coolant system leaks, a near collision with another cargo rocket and worst of all, a fire.

Meanwhile, Foale KB5UAC has been back on the air from MIR, not only having contacts with earth-based stations, but the first spaceship-to-spaceship contact between MIR and the US shuttle Columbia on Saturday, 5 July 1997. The historic SAREX/MIREX contact happened at 1205 UTC during a "conjunction" of the two spacecraft while orbiting over the Indian Ocean, when they were only 50 nautical miles apart in space. The contact lasted less than a minute, the *ARRL Letter* for 11 July reported.

However, they repeated the feat at 1306 UTC the same day while both spacecraft were over the Pacific Ocean. On the following Tuesday, 8 July, Foale aboard MIR, had a phone patch contact with the shuttle Columbia crew for 10 minutes. Foale jokingly invited the Columbia crew to visit MIR, which they respectfully declined.

The *ARRL Letter* for 8 August noted that Mike Foale was still active on the amateur bands from MIR as he and his two Russian crew companions aboard the stricken spacecraft awaited the arrival, in early August, of two cosmonauts to help repair the ship. He was using 145.985 simplex over the US and 145.200/800 MHz split elsewhere. Packet operation was curtailed owing to a faulty TNC, which was to be replaced with the arrival of the two cosmonauts in August. Foale is scheduled to remain aboard MIR until mid-September when he will be replaced by David Wolf KC5VPF, a medical doctor.

Web surfers can keep up with MIR's progress at *www.hq.nasa.gov/office/pao/NewsRoom/today.html*. Details on SAREX are found at *www.arrl.org/sarex*.

[Released 12/7/97. Updated 8 August].

Editor's Comment

Continued from page 2

lost even though all involved take the greatest possible care. There is now a better alternative. Digital cameras have arrived and a photo can be sent on disk. If no digital camera is available perhaps a scanner can be used to digitise your print (a flat-bed scanner at 300 DPI is ideal). But now that your photo (or Hamad or whatever) is in digital form, you need not send a floppy disk! You can send it digitally by e-mail and, better than "snail mail" or fax, you get acknowledgement of receipt. The photos on pages 32 and 44 of August *Amateur Radio* were sent this way. Their resolution and greyscale are excellent. The marvels of modern technology are becoming available to all!

Bill Rice VK3ABP
Editor

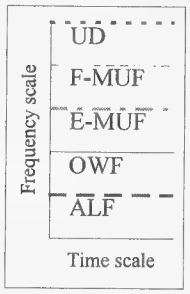
WIA MORSE PRACTICE TRANSMISSIONS

VK2BWI	Nightly at 2000 local on 3550 kHz
VK2RCW	Continuous on 3699 kHz and 144.950 MHz 5 wpm, 8 wpm, 12 wpm
VK3COD	Nightly (weekdays) at 1030 UTC on 28.340 MHz and 147.425 MHz
VK3RCW	Continuous on 145.650 MHz, 5 wpm, 10 wpm
VK4WIT	Monday at 0930 UTC on 3535 kHz
VK4WCH	Wednesday at 1000 UTC on 3535 kHz
VK4AV	Thursday at 0930 UTC on 3535 kHz
VK4WIS	Sunday at 0930 UTC on 3535 kHz
VK5AWI	Nightly at 2030 local on 3550 kHz
VK5VF	Continuous on 145.650 MHz, 5 wpm to 12 wpm
VK6RCW	Continuous on 147.375 MHz, 3 wpm to 12 wpm
VK6WIA	Nightly (weekdays) at 2000 UTC on 3.555 MHz

HF Predictions

Evan Jarman VK3ANI

T Index: 28



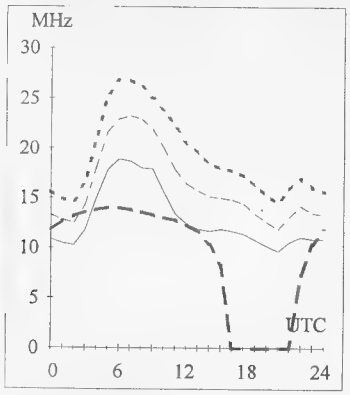
These graphs show the predicted diurnal variation of key frequencies for the nominated circuits. This also indicates a possibility of communication (percentage).

The frequencies, identified in the legend, are:-
Upper Decile (F-layer, 10%)
F-layer Maximum Useable Frequency (50%)
E-layer Maximum Useable Frequency
Optimum Working Frequency (F-layer, 90%)
Absorption Limiting Frequency

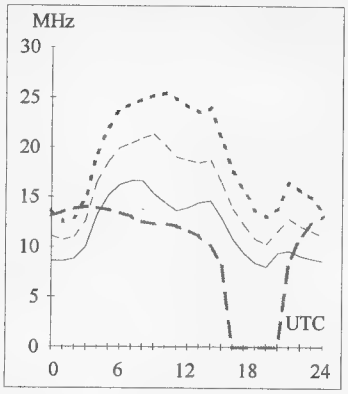
The predictions were made with the Ionospheric Prediction Service program, ASAPS V3.2. The T index used is shown above the legend. The Australian terminal azimuth, path and propagation mode are also given for each circuit.

ar

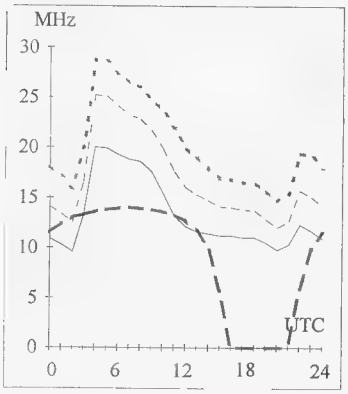
Adelaide-Budapest 305
First F 0-5 Short 14908 km



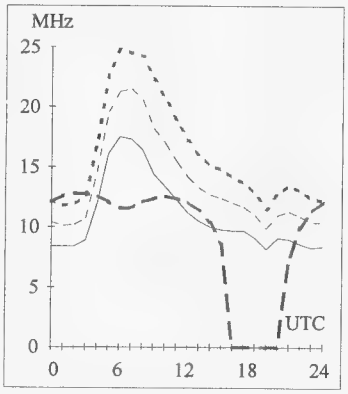
Brisbane-Berlin 321
First F 0-5 Short 15678 km



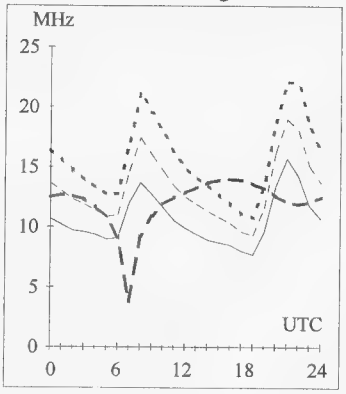
Adelaide-Cairo 288
First F 0-5 Short 13332 km



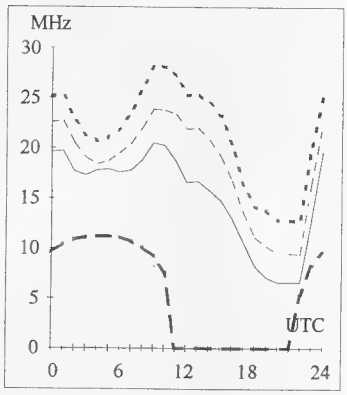
Brisbane-Capetown 218
Second 4F3-5 4E0 Short 11683 km



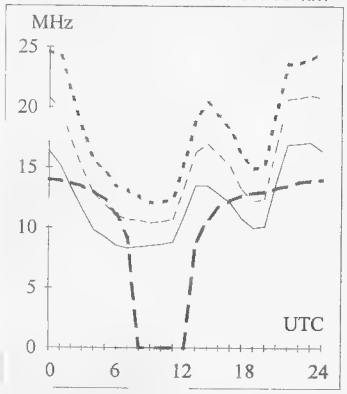
Canberra-London 136
First F 0-5 Long 23042 km



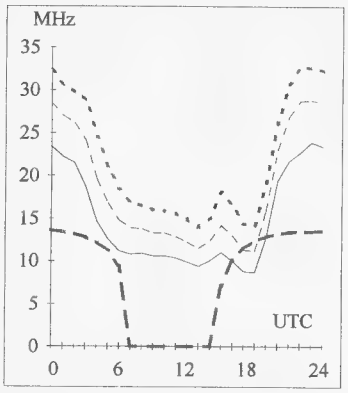
Darwin-Bangkok 310
First 2F7-15 2E0 Short 4435 km



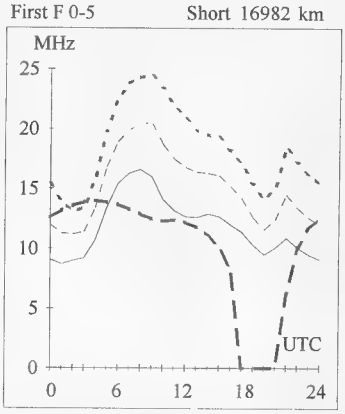
Adelaide-Ottawa 58
First F 0-5 Short 16901 km



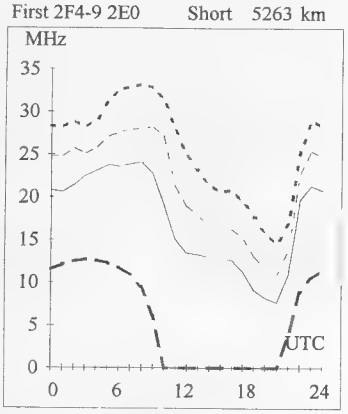
Brisbane-Los Angeles 59
Second 4F3-6 4E0 Short 11563 km



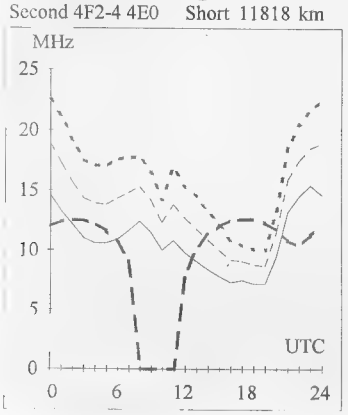
Canberra-London 316
First F 0-5 Short 16982 km



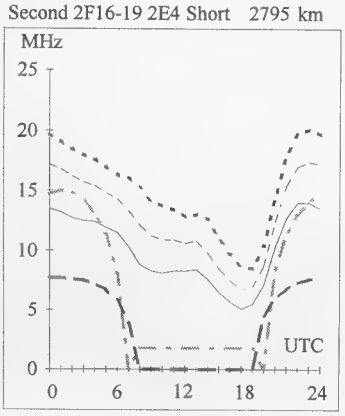
Darwin-Osaka 5
First 2F4-9 2E0 Short 5263 km



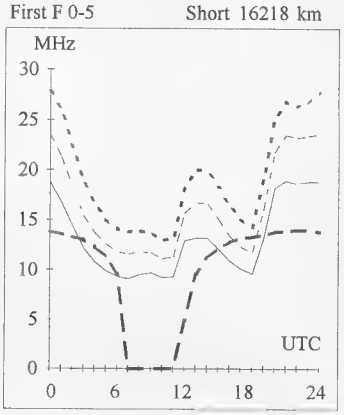
Adelaide-Santiago 155
Second 4F2-4 4E0 Short 11818 km



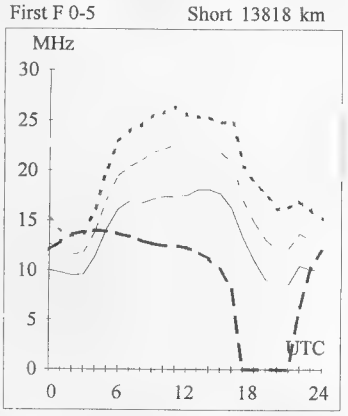
Brisbane-Suva 74
Second 2F16-19 2E4 Short 2795 km



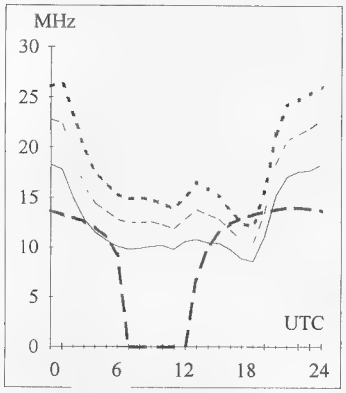
Canberra-New York 68
First F 0-5 Short 16218 km



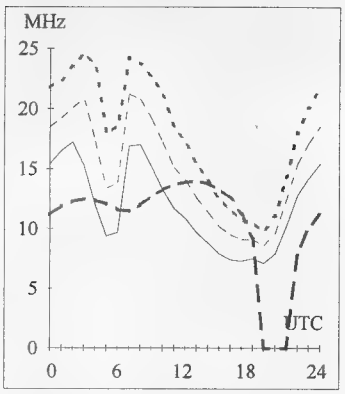
Darwin-Paris 322
First F 0-5 Short 13818 km



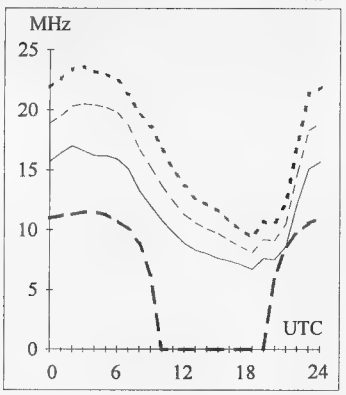
Hobart-Chicago 72
First F 0-5 Short 15576 km



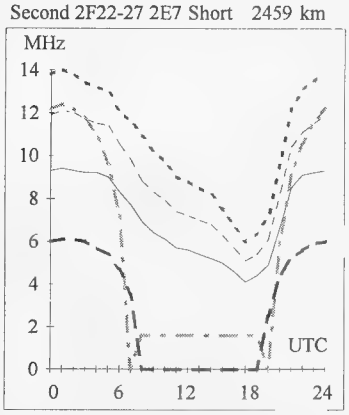
Melbourne-Dakar 219
First F 0-5 Short 16909 km



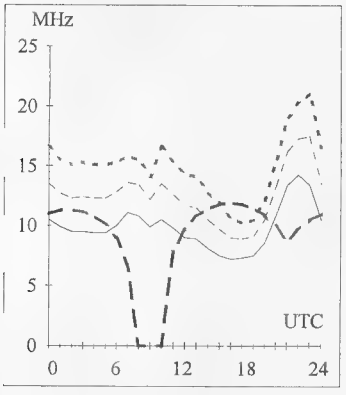
Perth-Christchurch 122
First 2F5-8 2E0 Short 5050 km



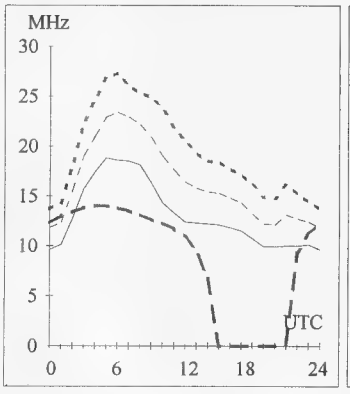
Sydney-Auckland 106
Second 2F22-27 2E7 Short 2459 km



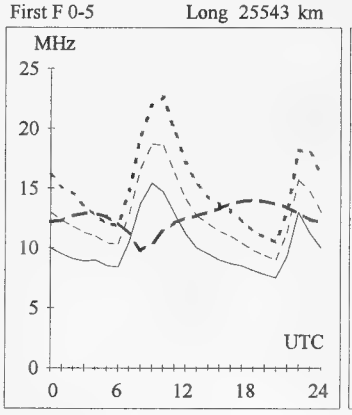
Hobart-Montevideo 161
Second 4F4-5 4E0 Short 11043 km



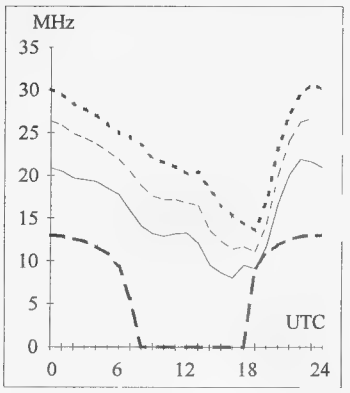
Melbourne-Moscow 316
First F 0-5 Short 14428 km



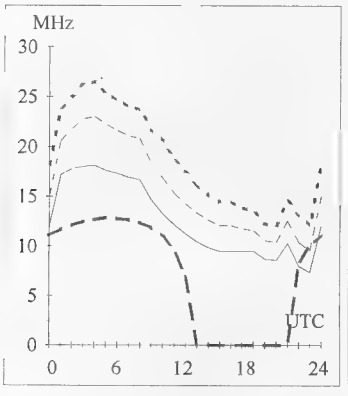
Perth-London 133
First F 0-5 Long 25543 km



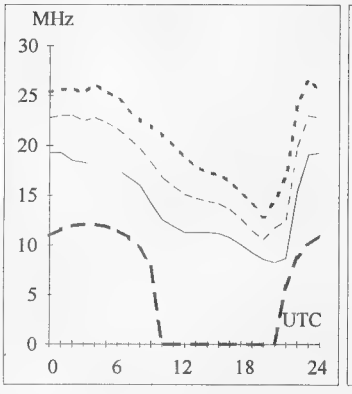
Sydney-Honolulu 49
First 3F3-7 3E0 Short 8169 km



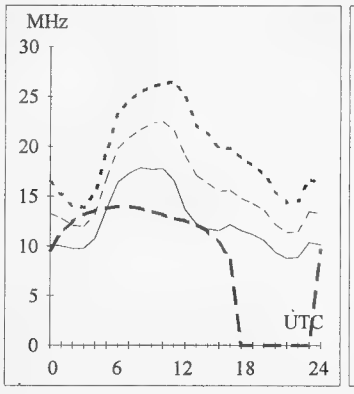
Hobart-New Delhi 304
Second 4F4-9 4E0 Short 10687 km



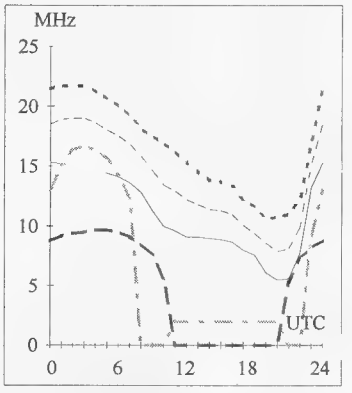
Melbourne-Taipei 337
Second 3F5-10 3E0 Short 7408 km



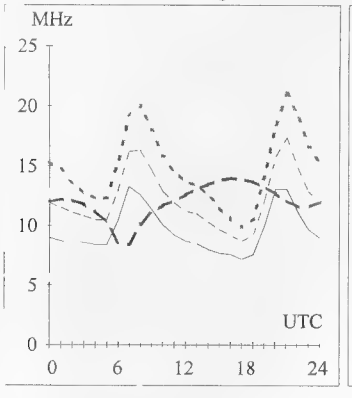
Perth-London 313
First F 0-5 Short 14481 km



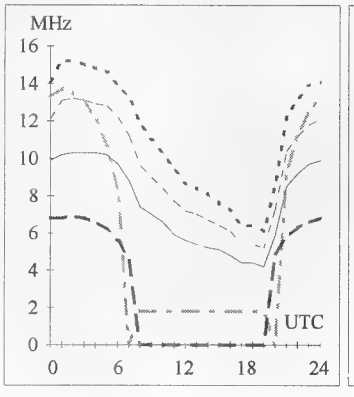
Sydney-Jakarta 294
Second 3F10-14 3E1 Short 5498 km



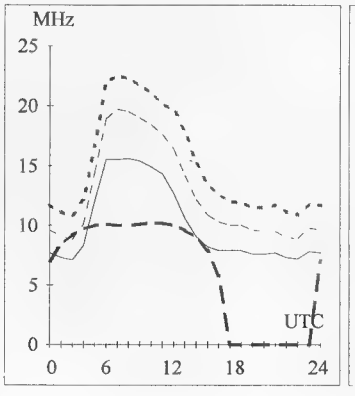
Hobart-Stockholm 136
First F 0-5 Long 23871 km



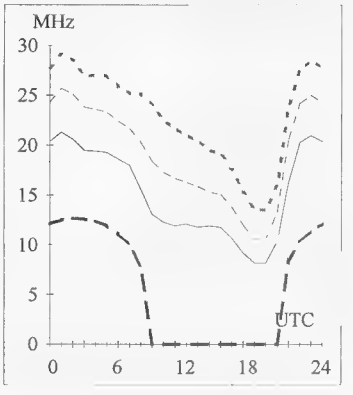
Melbourne-Wellington 108
Second 2F18-23 2E5 Short 2571 km



Perth-Pretoria 249
Second 4F8-11 4E0 Short 8327 km



Sydney-Tokyo 350
Second 3F4-8 3E0 Short 7825 km



HAMADS

- Hamads may be submitted on the form on the reverse side of the *Amateur Radio* address flysheet. Please use your latest flysheet where possible.
- Please submit separate forms for **For Sale** and **Wanted** items, and be sure to include your name, address and telephone number (including STD code) if you do not use the form on the back of the *Amateur Radio* address flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment offered for sale should be included in the Hamad.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at $25.00 for four lines (twenty words), plus $2.25 per line (or part thereof), with a minimum charge of $25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of *Amateur Radio*, at:

  Postal: 3 Tamar Court, Mentone VIC 3194
  Fax: (03) 9584 8928
  E-mail: vk3br@c031.aone.net.au

TRADE ADS

• **AMIDON FERROMAGNETIC CORES**: For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Webb Electronics, Albury: Assoc TV Service, Hobart: Truscotts Electronic World, Melbourne and Mildura: Alpha Tango Products, Perth: Haven Electronics, Nowra: and WIA Equipment Supplies, Adelaide.

• **WEATHER FAX programs** for IBM XT/ATs *** "RADFAXZ" $35.00, is a high resolution short-wave weather fax, Morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. *** "SATFAX" $45.00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. *** "MAXISAT' $75.00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add $3.00 postage. ONLY from M Delahuntly, 42 Villiers St, New Farm QLD 4005. Ph 07 358 2785.

• **HAM LOG v.3.1** - Acclaimed internationally as the best IBM logging program. Review samples....AR: "Recommend it to anyone":
The Canadian Amateur: "Beyond this reviewer's ability to do it justice. I cannot find anything to improve on. A breakthrough of computer technology". ARA: "Brilliant". Simple to use with full help, the professional HAM LOG is immensely popular (now in its 5th year), with many useful, superb features. Just $59 (+ $5 P & P), with a 90 page manual. Special 5 hour Internet offer. Demos, brochures available. Robin Gandevia VK2VN, 02 369 2008 BH, fax 02 369 3069. Internet address *rhg@ozemail.com.au*.

FOR SALE ACT

• **Amateur Radio Action magazines**, 141 issues from issue one to October 1995, any offers? **2 m collinear antenna** made in copper tube on 3 m wooden pole, $15.00 ONO. VK1US, QTHR, 06 281 3587.

FOR SALE NSW

• HP ES12 **Vectra 286 PC**, EGA screen, 20 Mb HDD, 4xFDDs, HP-IB Thinkjet printer, mouse, keyboard, books, 2.8 Mb RAM, $45.00. HP original **Vectra 286 PC**, 640 k RAM, rest as above, $45.00. John VK2WW, 02 9546 1927.

• **AKD HF3 Target SW receiver**, 30 kHz to 30 MHz, AM, USB, LSB, with PSU, as new $250, or swap for HF ATU. David VK2XDD, AH 049 820 360.

• **Yaesu FRG100** receiver, current model, as new, s/n 31100166, $600. Robert VK2MAN, 066 585 169.

• **Kenwood TS-690SAT** HF/50 MHz txcvr, $1750 ONO. **Kenwood TS-440SAT** HF txcvr, $1400 ONO. Both Kenwoods in excellent condn with all filters and manuals. **Alinco DJF1T** 2 m hand-held, accessories, $200. **DSP-9**, $200. **TNC 320**, $150. **Philips Condor 70 cm FM**, OK for 9600/1200 baud packet, $250. **IBM computer**, excellent for packet, $100 ONO. Frank VK2EKY, QTHR, 02 9896 5859.

• **Yaesu FT-209RH** hand-held txcvr, 140-150 MHz, 5 W output, new battery, case and YH2 headset/mic for hands-free work with VOX, VGC, $290 the lot. Bruno VK2BPO, QTHR, 02 9713 1831.

• **Trade journals** - radio history: Philips Tech Communication 1937-55, bound 1946-52. STC Components Review 1966-73. AWA/RCA Components circ 1965. AWA Radiotronics 1959-69. Acme Components circ 1970. $30 ONO. Useful for research historians. VK2IK, QTHR, 02 9874 8994.

• **Icom IC-271A** all mode base, 2 m, $600. **Icom PS-15** PSU, $300. **Kenwood TH-78** dual band hand held, spkr/mic, $500. Geoff VK2GRM, 047 351 415, 018 205 387.

FOR SALE VIC

• **Icom IC-745** HF txcvr with PSU, VGC, $850. Ted VK3NIZ, 03 5332 3340 (all hours).

• **Linear amplifier**, 600 watts, s/n AL81113539X, practically new, reasonable offer accepted. Antonio VK3ALA, QTHR, 03 5728 6624 (any time).

• **TET HB33M** 3 el mini-beam, 20, 15 & 10 m, good performer, owner upgrading, $300. **MD1B8** desk microphone, as new, suit Yaesu rigs, $200. Peter VK3AJP, 03 9822 3783.

• **Telescopic masts**, one 30 ft and one 40 ft, guys, egg insulators, one mast with light rotator, worth $4-500, sell $195. Graeme VK3QS, QTHR, 03 9435 4336.

• **Yaesu FT-290R** 2 m txcvr, $250. **Lunar Electronics 2M4-40P** 2 m linear amp, $60. **AEA PAKRATT PK232 TNC**, c/w manuals and program, $300. **Yaesu FLDX-2000** linear amplifier, $250. **Ham-M** antenna rotator, c/w control panel and 60 ft control cable, $400. **Cushcraft ATB-34** 20-15-10 m Yagi antenna, $300. **Hills crank-up tower**, 2 piece extends to 48 ft, c/w winch, etc, $350. John VK3FH, QTHR, 03 5986 1592.

• **Yaesu FT-75B** HF txcvr with manual, cradle and **FV107** VFO. **NEC CQ-110E** txcvr with manual, spare boards and tubes. Both rigs need service. Accept reasonable offer. Max VK3GMM, QTHR, 03 5985 2671.

• Deceased estate. **Icom IC-45A** 70 cm, $345. **Kenwood DFC-230** controller, $150. **Tokyo 70 cm linear amplifier**, $100. **AT computer** complete with monitor, 2xFDDs, HDD, ergonomic multi P desk with packet software, $145 complete. **Marconi TF2300A deviation meter**, $525. **Marconi TF995B5 signal generator**, $275. All items can be viewed at WIA Victorian Division office. 03 9885 9261.

• **80 m ARDF sniffer kits**, VK3MZ design, features xtal filter and "whoopie" mode. For details contact Mark VK3JMD, AH 03 9558 2959.

• **House for sale at Frankston South**, two bedrooms, well maintained, ducted heating air conditioning throughout, land 800 m2, two street entrances, ideal for ham, including Nally tower, TH6DXX, Council approved three unit site. VK3CLV, 03 9787 4915.

• **Yaesu FT-101E** HF txcvr incl CW filter, $300. **Yaesu FL-2100Z** linear amplifier, $700. **144 MHz linear amplifier**, 30 W, $80. Ken VK3DQW, 03 5251 2557.

FOR SALE QLD

• **AWA RT85 VHF mobile txcvr**, 25 watt, 64 channels programmed with popular simplex, repeater and packet frequencies, c/w mic, I/C cable, remote head and cradle, $130. Will reprogram to your frequencies, add $30. **Avometer Model 8**, meter good condn, case F/C, no leads, $45 ONO. **QB3-300 valves** (sim 4-125), new in cartons, $25 each. Malcolm VK4ZMM, QTHR, 07 3298 5454.

• **Kenwood TS-120S** with mobile mount, $450 ONO. R Elliott VK1AN, Ashmore QLD, 0418 937 468.

• **Yaesu FL-7000** solid state HF amp, four button switchable model, SSB, RTTY, etc, comes with Yaesu FAS-1-HR remote antenna switch, fully tested and in original condition, hams only! Dennis VK4SX, 071 515 041, e-mail *dennis.edey@b130.aone.net.au*

• **Kenwood TS-430S** txcvr, s/n 4071773, selling for estate of Jack VK8ZL/4, all functions 100%, DC lead, mic, extremely clean, operators manual and circuits, $700. Donald VK4GP, QTHR, 07 3408 2763.

FOR SALE SA

• **Brother HR-10 daisywheel printer**, works well, VGC, suit packet station, $30 ONO. **Maestro 9600XR fax/data modem**, $30 ONO. Hank VK5NCA, 08 8272 7435.

• **Drake L4B** linear amplifier, ticks over at legal limit, controls measure to 3000 watts, never again miss DX, covers 10-80 m, value $4000, sell $1950. Several **3000 V working filter capacitors** up to 100 mfd, sell $1.50 per mfd. **"Whisper" cooling fans**, new, offers wanted. Two **stereo speakers** in resonant baffle boxes, cross-over networks, handle up to half kW of stereo audio, freq 20-20000 Hz, 4 inch flush panel meters, total of ten speakers, value $400 each, sell $295. VK5DC, QTHR, 08 8431 4194.

• **Prime Focus 2.76 m dish**, as new, solid spun heavy duty aluminium, with heavy duty, hot dipped polar mount and tripod, all mounted on a heavy duty tandem trailer with stabilisers, ideal for tropospheric work, best offer. Bob VK5UL (ex VK5BJA), QTHR, 08 8362 2251 (BH), 08 8267 5859 (AH).

• **8 el log periodic antenna**, "must sell", $450 negotiable. Also antennas and bits and pieces. Paul VK5MAP, QTHR, phone/fax 08 8651 2398.

FOR SALE WA

• **Yaesu FT-707** HF mobile/base txcvr, 80 thru 10 m inc WARC bands, s/n OH020981, good condn, $650 ONO. Geoff VK6NPN, 099 491 934.

• **Racal RA-17-C12 receiver**, restored, great performance and appearance, complete with MA-197C pre-selector, and RA-121B & RA-98B ISB adapters, offers or swap. Looking for good Hammarlund SP-600, Collins 51J4, etc. Bring a strong lad to carry the Racal gear! John VK6XJ, QTHR, 08 9295 3333, fax 08 9295 3535.

• **Yaesu FT-290RH** 2 m hand-held, 10 memories, scanning, etc, s/n 360200, $200 ONO. **Kenwood TH-27A** 2 m hand-held, Rx 136-170 MHz, 40 memories, compact unit, s/n 30200950, $300 ONO. Chris VK6KCH, 08 9354 8826, e-mail *vk6kch@amsat.org*.

• **ATN log periodic antenna**, 13 to 54 MHz inclusive, 12 el, unused due to Council problems, less than half price at $800 or swap for good 12 V txcvr, or what-have-you. Don Peterkin VK6DJP, 08 9458 3449.

FOR SALE TAS

• **Kenwood TS-690S**, ATU, manual, original packaging, s/n 30800239, deceased estate, VGC, make a reasonable offer. Bryan VK7ZBE, 03 6424 3685.

WANTED NSW

• **Short-wave or communications receiver**, PLL type with memories, capable of receiving all VNG frequencies 2500, 5000, 8638, 12984 and 16000 kHz AM. Peter VK2BEU, 02 9872 3381 (AH).

WANTED VIC

• **Eddystone EC-10 receiver**, clean, good condn, reasonable price. Ken VK3JII, QTHR, 03 9580 5347.

WANTED QLD

• **ECH42 valve**, **Realistic DX-160 receiver circuit diagram**. VK4AXM, 07 3287 5655.

• **1296 MHz converter**. John VK4TL, 070 968 328.

• **Kenwood RD-300 dummy load**. **Kenwood ATU**. Aubrey VK4HBA, QTHR, 07 3410 0004.

• **Books and/or circuits** for: **Metrix 920C** signal generator; **Leader LSW250** sweep generator; **Mullard E7555/2** VTVM. **Connectors** for General radio equipment, in particular for type 1215-B and 1602-B UHF admittance meter. Will pay all costs. Malcolm VK4ZMM, QTHR, 07 3298 5454.

• **R1155 receiver**, any condn, for restoration, appreciate parts or circuits, etc. Howard, VK4NX, QTHR, 07 5546 7916, 0418 710 599.

WANTED SA

• **Philips valve colour TV**, probable model X25K, probably purchased from H C Robinson, Queenstown. VK5ZST, QTHR, 08 8520 2988.

• **Yaesu FT-726**. **Valve communications receiver**, eg Eddystone, Collins, etc. **High voltage relays** suitable for switching open wire feeder coil, any operating voltage OK. David VK5AXW, 08 8370 1066 (BH), 08 8370 9569 (AH).

• **Kenwood TS-430S FM board**. Hank VK5JAZ, 08 8272 7435.

• **Yaesu SP-102** external speaker, as used on Yaesu FT-102 and FT-726R. Kevin VK5BCB, 08 8725 9248 (AH), fax 08 8723 9350 (24 h), e-mail *vk5bcb@seol.net.au*

• **Photocopy of Micronta multimeter model 22-202B operators instructions**, all costs refunded. Paul VK5MAP, QTHR, phone/fax 08 8651 2398.

WANTED WA

• **3-500Z tube socket**, must be Eimac SK-410 or equivalent. Henry, 08 9478 1993 (phone/fax), e-mail *henryt@perth.dialix.oz.au*.

WANTED TAS

• **Philips 828 modification kit** sourcing details to provide frequency synthesis. Advert appeared in *Amateur Radio* and answered, but nothing heard. Has anyone bought? How does it perform? Thought to be VK3 origin. Several VK7s would like to make use of such facility. Incurred costs covered. Rod VK7TRF, QTHR, 03 6227 8925.

MISCELLANEOUS

• **The WIA QSL Collection** (now Federal) requires **QSLs**. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose VIC 3765, tel 03 9728 5350.

ar

An Amateur and His Station

Frank Murdzia VK2EKY and his neat, compact amateur station.

*(**An Amateur and His Station** is an intermittently published segment. We are always looking for photos for this segment, preferably colour or black and white prints.)*

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

	Division Address	Officers			Weekly News Broadcasts		1997 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601	President Secretary Treasurer	Hugh Blemings John Woolner Les Davey	VK1YYZ VK1ET VK1LD	3.570 MHz LSB, 146.950 MHz FM each Sunday evening commencing at 8.00 pm local time. The broadcast text is available on packet, on Internet aus.radio.amateur.misc newsgroup, and on the VK1 Home Page http://www.vk1.wia.ampr.org	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK2	NSW Division 109 Wigram St Parramatta NSW (PO Box 1066 Parramatta 2124) Phone 02 9689 2417 Freecall 1800 817 644 Fax 02 9633 1525	President Secretary Treasurer (Office hours Web:http://marconi.mpce.mq.edu.au/wia e-mail address: vk2wi@ozemail.com.au Packet BBS: VK2WI on 144.850 MHz	Geoff McGrorey-Clark Eric Fossey Eric Van De Weyer Mon-Fri 11.00-14.00)	VK2EO VK2EFY VK2KUR	From VK2WI 1.845, 3.595, 7.146*, 10.125, 14.160, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup *aus.radio.amateur.misc*, and on packet radio.	(F) (G) (S) (X)	$69.00 $56.00 $41.00
VK3	Victorian Division 40G Victory Boulevard Ashburton VIC 3147 Phone 03 9885 9261 Fax 03 9885 9298	President Secretary Treasurer (Office hours Tue & Thur 0830-1530) Web: http//www.tbsa.com.au/~wiavic/	Jim Linton Barry Wilton Rob Hailey	VK3PC VK3XV VK3NC	VK3BWI broadcasts on the 1st Sunday of the month, starts 10.30 am. Primary frequencies 3.615 LSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3WI on Victorian packet BBS and WIA VIC Web Site.	(F) (G) (S) (X)	$75.00 $61.00 $47.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone 074 96 4714	President Secretary Treasurer e-mail address: wiaq@brisbane.dialix.com.au	Rodger Bingham Malcolm McIntosh Bill Sebbens	VK4HD VK4ZMM VK4XZ	1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 14.342 MHz SSB, 28.400 MHz SSB, 29.220 MHz FM, 52.525 MHz FM, 146.700 MHz FM, 147.000 MHz FM, 438.525 MHz (Brisbane only), regional VHF/UHF repeaters at 0900 hrs Sunday. Repeated on 3.605 MHz SSB & 147.000 MHz FM, regional VHF/UHF repeaters at 1930 hrs EAST Monday. Broadcast news in text form on packet under WIAQ@VKNET.	(F) (G) (S) (X)	$74.00 $60.00 $46.00
VK5	South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone 08 8352 3428 Fax 08 8264 0463	President Secretary Treasurer Web: http://www.vk5wia.ampr.org/	Ian Hunt Graham Wiseman Joe Burford	VK5QX VK5EU VK5UJ	1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Mildura, 146.825 FM Barossa Valley, 146.900 FM South East, 146.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. 3.585 MHz and 146.675 MHZ FM Adelaide, 1930 hrs Monday.	(F) (G) (S) (X)	$75.00 $61.00 $47.00
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone 09 351 8873	President Secretary Treasurer Web: http://www.faroc.com.au/~vk6wia	Wally Howse Christine Bastin Bruce Hedland-Thomas	VK6KZ VK6ZLZ VK6OO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1.825, 3.560, 7.075, 14.116, 14.175, 21.185, 29.680 FM, 50.150 and 438.525 MHz. Country relays 3.582, 147.350(R) Busselton and 146.900(R) Mt William (Bunbury). Broadcast repeated on 146.700 at 1900 hrs Sunday, relayed on 1.865, 3.563 and 438.525 MHz; country relays on 146.350 and 146.900 MHz.	(F) (G) (S) (X)	$62.00 $50.00 $34.00
VK7	Tasmanian Division PO Box 271 Riverside TAS 7250 Phone 03 6327 2096 Fax 03 6327 1738	President Secretary Treasurer	Ron Churcher Barry Hill Mike Jenner	VK7RN VK7BE VK7FB	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs.	(F) (G) (S) (X)	$74.00 $60.00 $46.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).						

Note: All times are local. All frequencies MHz.

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Now there's no excuse for not taking advantage of the latest advances in Digital Signal Processing, transceiver design plus the fun of 6m operation. The stunning new Yaesu FT-920 is a high performance HF/6m multi-mode receiver that provides 100W PEP output on the 160-6m bands, incredible front-end performance based on the FT-1000MP design, and a huge array of features that make it a pleasure to use.

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